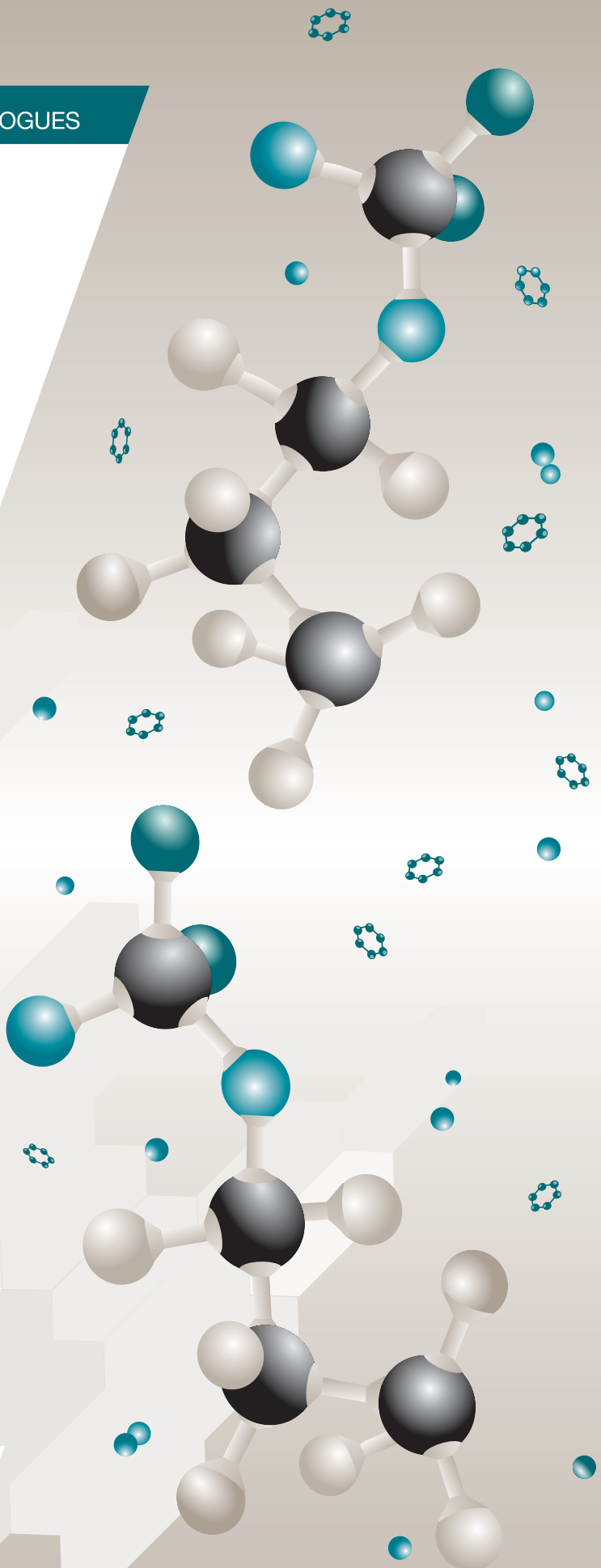
INNOVATION AND INTERNACIONALIZATION CATALOGUES

Catalan Technology Profiles

BIO SECTOR

2009



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Catalan Technology Profiles

SUMMARY

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Catalan Technology Profiles

Technology Offers

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New platform for skin regeneration and hurt healing

(Ref: 06 ES CACI 0GAL)

Technology Offer

Abstract:

A Catalan university research group has developed a new biomaterial with potential applications in the skin regeneration field. The technology was developed as a combination of different biomaterials that accelerate cellular regeneration in absence of scar formation. This new technology has new potential application in human health fields related with skin regeneration (burn, surgery, injuries, etc.). The Catalan group is looking for an industry willing to bring the technology to the market.

Description:

A Catalan group with expertise in molecular biology and tissue engineering offers a combination of biomaterials and proprietary know-how in cells growth as a promising platform for skin regeneration without scar formation. The biomaterials used are a combination of bio-molecules and nutrients that accelerate and strengthen the regeneration potential of skin cells. With respect to the current technologies available for skin regeneration, the main advantage is the lack of formation of scars in the new tissue. For these reasons, the technology offers an interesting potential for application in medical issues and therapy, in all those cases where skin regeneration is needed (for example injury, burn, etc.) to accelerate skin healing.

Innovations and advantages of the offer:

Appropriate combination of 3D scaffolds and nutrients that improves dramatically the regenerative potential of cells. The main advantage is the absence of scar during the regeneration process.

Targeted Countries

ALL

Associated Thematic Group

Biotech Pharma & Cosmetics

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Optical neuro-imaging for non-invasive stem cell tracking after brain transplantation in transgenic models of neurodegenerative diseases

(Ref: 07 ES CACI 0HOP)

Technology Offer

Abstract:
A research group from Barcelona has a large experience on gene and cell therapy by using stem cells. They have developed a non-invasive technique to track stem cells after brain transplantation. This technique can be used on neurodegenerative diseases such as Huntington's disease. The group is looking for a partner from industry or academia to establish technical cooperation or research collaboration.

Description:
A Catalan research group's main expertise is related with the therapeutic potential of stem cells in Huntington's disease. The group has developed cellular and animal models to study cell and gene therapy for Huntington's disease. In particular, the group is studying the role of some transcription factors that are involved in the development of striatal neurons, to differentiate embryonic and/or neural stem cells for cell replacement. In this framework, stem cell transplantation has been proposed as a therapeutic strategy for neurodegenerative disorders. The implementation of cell transplantation requires the improvement of noninvasive neuro-imaging techniques for cell tracking. Different strategies have been developed to track cells after transplantation. However, most of the available techniques use lipophilic or magnetic particles that can be taken up by other kinds of cells: macrophages, astrocytes or even neurons can take up the labelled particles, providing false positive results.

They have recently assayed a new non-invasive technique to track stem cells after brain transplantation. The genetic labelling of stem cells with luciferase and eGFP (Enhanced Green Fluorescent Protein) allowed them to detect and track the cells in vivo for a long time as well as to perform histological analyses. In addition, the repetitive analyses of the same mice at several time points after transplantation allow quantifying the proliferation, cell death or migration of stem cells without the need of killing animals at different time points. This technique can be applied for stem cell transplantation in animal models of neurodegenerative disorders. They also have experience in cell therapy studies for Parkinson's or Huntington's disease. Their experience is large in performing cell transplantation in mouse or rat models for these neurodegenerative disorders. They have also different transgenic mice for Huntington's disease, which can be used to test pharmacological or gene and cell therapies. They developed a new transgenic model to show the involvement of BDNF (Brain-Derived Neurotrophic Factor) in Huntington's disease. They also have background in neural stem cell differentiation and transplantation. They offer these cell transplantation and tracking techniques as well as the animal models for studies in neurodegenerative disorders.

Innovations and advantages of the offer:
The genetic labelling of stem cells allows performing non-invasive optical neuro-imaging. This photonic detection allows quantifying and tracking the migration of stem cells in vivo. This system improves the luciferin-luciferase system, allowing the detection of a lower number of transplanted stem cells. Noninvasive neuro-imaging is a good methodology to track stem cells in the same animal. The repetitive analyses and the linearity of this technique allow quantifying the number of cells after transplants as well as the changes due to cell death or proliferation. Also, cell migration can be tracked in vivo.

Targeted Countries
ALL

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Adult mesenchymal stem cells from lipoaspirate as a model to study safety and mechanism of action for drugs

(Ref: 07 ES CACI 0HQZ)

Technology Offer

Abstract:
A Catalan technology transfer center has developed a technology to isolate human adult mesenchymal stem cells. This group offers this technology to industries or research groups that could be interested. They are open to any type of collaboration.

Description:
A Catalan group is a research unit specialised in the development, application and transfer of molecular and cellular technologies. This centre of research works in the detailed characterisation of cell behaviour and in the mechanism of action of new products. The group as 20 years research expertise that produced over 60 publications in recognised scientific journals.
The main line of research aims at using those cells as a model to produce differentiated cultures in the laboratory to perform studies about safety and mechanism of action of new and known drugs. This model allows obtaining precursor and differentiated cells such as myocytes, condrocytes and adipocytes etc., well characterised and with reproducible methodology. These models have demonstrated their effectiveness to test safety and efficacy of drugs.

Innovations and advantages:
Current and Potential Domain of Application Pharmaceutical and cosmetic companies, chemistry of synthesis of active principles, biotechnology, food industry and veterinary.

The technology have proved effectiveness in isolation and differentiation in different cell types, so that the main advantages are related with the easy development of a great variety of cell lines to test new pharmaceutical products.

Targeted Countries

ALL

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New processes for bread baking using Radiofrequency (RF)

(Ref: 07 ES CACI 0HR2)

Technology Offer

Abstract:
The process consists of new way to bake different types of bread. White bread, crustless bread, using only dielectric heating (RF). Classic bread using a combination of dielectric heating and conventional ovens. The advantage of this technology is short times of proofing, fermenting, and baking.

Innovative Aspects:
- Economic process
- New generation of products
- Increases Shelf Life
- Increases Production
- Reduces Cooling line Length.
- Product color not affected
- REDUCTION of energy consumption
- No contamination

Main Advantages:
- Productivity improvements
- Longer Shelf Life
- Reduces evaporation of volatile flavouring
- REDUCTION of energy consumption
- Reduction in required floor space
- No contamination

Current Stage of Development:
Available for demonstration

Market Applications Highlights:
The use of Radiofrequency as a non contaminant dielectric heating for baking processes, permits to save significant space in new production line, when planning the new line using RF. In the case of existing production lines, introducing RF can increase the production until 40%. In the case of white bread, the use of RF technology permits to obtain classic bread in shorter time. Crustless bread can be obtained without any necessity to cut the crust. This permits to save until 35% of raw materials, reduces several steps in the actual fabrication process of the crustless bread, and increases the production of existing Lines. RF technology permits an automatic control of moisture contents avoiding high humidity content in the bread (inferior to 38%) and increasing the shelf life of the bread.

Collaboration Type:
- Commercial Agreement with Technical Assistance

Comments:
- The type of partners we are looking for is industry
-The specific area of activity of the partner is bakery industry
-The tasks to be performed by the partner are aquired the tecnology and market the final product.

Targeted Countries
ALL

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Acetylcholinesterase inhibitory compounds for the treatment of Alzheimer's disease

(Ref: 07 ES CACI 0HRJ)

Technology Offer

Abstract:

A Catalan research group has developed a new family of acetyl cholinesterase (AChE) inhibitors, with subnanomolar IC50 values towards bovine and human AChE and inhibitor activity towards butyrylcholinesterase (BChE). As dual binding site AChE inhibitors, these compounds might be of interest not only to improve the quality of life, but also to prevent, stop or delay the disease in patients suffering Alzheimer. The group is looking for license agreement or other kind of collaborations.

Description:
Alzheimer is an extended disease as affects more than 25 million of people around the world. Drugs prescribed to treat this disease include acetyl cholinesterase inhibitors, NMDA receptor antagonist and vitamin receptor antagonist. The research group has developed new binding site AChE inhibitors.

These dual binding site AChE inhibitors are composed of fragments or units of two well known AChE inhibitors: donepezil and tacrine, which are connected by an appropriate linker. The synthesis of the compounds is straightforward although it should be improved for scaling up.

The research group that has developed the new process has great experience in the area of organic chemistry with special relevance in the area of organic synthesis, enantioselective syntheses based on the use of chiral auxiliaries, generation and reactions of strained compounds and AChE inhibitors for the treatment of Alzheimer's disease.

Innovations and advantages:
-Dual binding site AChE inhibitors are potentially new anti-Alzheimer drug candidates.
-Availability of building block compounds to start the synthesis.
-High inhibitor potency towards AChE and BChE.

Current and Potential Domain of Application:
Treatment of Alzheimer's disease

Targeted Countries
ALL

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Screening test batteries for food safety and functional food assessment

(Ref: 07 ES CACI 0HTG)

Technology Offer

Abstract:

A Spanish research centre in toxicology based in Catalonia has developed innovative screening test batteries allowing to perform ecosurveillance, as well as to monitor public health. The main innovative aspect of the procedure is due to the integration of systemic toxicity, genotoxicity, fertility and teratogenesis data in a scientifically based frame. The researchers are looking for European research centres and/or enterprises to start a commercial agreement or technical cooperation.

Description:

Safety and health promotion are key concerns in developed societies, and even more in especially sensible fields, as is nutrition.

The screening test batteries developed and implemented by the research centre are batteries of biological tests that include the essential toxicology information: systemic toxicity, toxicology in reproduction (EST "Embryonic Stem Cell Test", MM "Micromass Test", FETAX "Frog embryo teratogenesis assay - Xenopus" and other), toxicology in reproduction (EST, MM, FETAX and others), genotoxicity (MNT "Micronucleous Test", Comet test, chromosome aberrations) and carcinogenicity (CTA "Cell Transformation Assay"), responding to a wide range of toxicants.

On the other hand, the same strategy is applicable to test the protective capacities against a controlled aggression, enabling them to assess the antioxidant, antigenotoxic or anticancerogenic potential of a probiotic food. A cell culture is exposed to a known oxidant, genotoxic or carcinogenic agent, and the effects are assessed by means of Comet Assay (normal or especially modified to detect oxidative damage) or CTA, comparing the results with those obtained in cultures exposed to toxicants and supplemented with the claimed protective probiotic.

A Spanish research centre comprises two units: the experimental toxicology unit and the ecotoxicology unit. As a research group, its expertise is among others, on experimental toxicology, ecotoxicology and risk assessment for the environment and public health.

Innovations and advantages:

- The screening test batteries can be considered an innovative approach due to the integration of systemic toxicity, genotoxicity, fertility and teratogenesis data in a scientifically based frame, customised depending on each case and goal.
- It can be customised (depending on each goal) and it may be used either to assess safety or to assess the protective potencial against known toxical agents on food.
- The screening test batteries permit to obtain a wide evaluation of the possible toxic effects of the products to be tested, with application to the main industries responsible of environmental and public health management.
- It is also an economic, rapid and sensible enough method that constitutes a useful early-warning tool to be used in a quality assessment process. Therefore, it can be applied to the main food industries.

Current and Potential Domain of Application:

Food industry and research centre.

Collaboration Type :

- Joint further development
- Testing of new applications
- Adaptation to specific needs
- Assembly
- Technical consultancy

Comments:

Type of partner sought: Industry, academy or research centres.

Specific area of activity of the partner: Manufacturers and users of food and agrofood products.

Task to be performed: To join further development or start a commercial agreement.

Targeted Countries

ALL

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Healthcare

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Production of the enzyme transglutaminase through microorganism fermentation for the food industry

(Ref: 07 ES CACI 0I4C)

Technology Offer

Abstract:

Food ingredients company located in Catalonia has a patent to produce commercial transglutaminase, which has many applications for the food industry. Looking to outsource production to another company.

Description:

Transglutaminase is widely used in the food industry as a texture improver, especially for meat, fish and dairy products. This is basically the only company that produces this enzyme and it has no major competitors.

Innovative Aspects:

It is the only option for buying commercial transglutaminase produced through fermentation.

Main Advantages:

If the production process is improved, a quality high-priced product can be sold.

Current and Potential Domain of Application:

Transglutaminase, which occurs widely in nature, is an enzyme with the revolutionary ability to improve the physical properties of various foods containing proteins.

The Activa brand offers many different possibilities for the food-processing industry and can be used in a variety of food processes, such as meat products (sausages, ham) and dairy products (yoghurt).

Collaboration Type:

- License agreement
- Joint further development
- Adaptation to specific needs
- New way to use an existing production line

Comments:

-Looking for a partner with technological know-how to improve the production method and achieve better results.

Targeted Countries

ALL

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Radio-frequency powered surgical device

(Ref: 07 ES CACI 0I8Y)

Technology Offer

Abstract:

A Catalan research group has developed a new electrosurgical instrument for tissue coagulation and cutting. The instrument addresses key parameters of successful hepatic surgery: blood loss and resection time. They are looking for a licensee capable of developing and commercialising the product.

Description:
In liver surgery, haemorrhage risk and resection time are the main determinants of the operative outcome. Blood loss during liver transection has been The main innovation is the radiofrequency-assisted coagulating and cutting device with internal refrigeration.
Regarding the advantages, this device has been tested on in-vivo pig liver surgery with significantly improved key surgery parameters versus state-of-theart technology (serum injection technology). specifically associated with post-operating complications. Specifically, peri-operative blood transfusions have shown to decrease survival rate.

A research group from Barcelona with experience in liver resection has designed & prototyped an instrument specifically for tissue thermo-coagulation opening & cutting of the pre-coagulated parenchyma. Its utilisation on a pig model significantly improved key surgery parameters: with lower blood transfusion and lower resection time. It is a radio-frequency-powered device that thermally coagulates tissue and quasi-simultaneously cuts the coagulated tissue. It has been successfully tested on vivo pig model, with positive results with comparison to state-of-the-art technology. They expect similarly promising results on oncoming clinical trials.

Though originally designed for liver surgery, the device is also applicable to other similar organs such as kidney, lung, spleen, stomach and pancreas.

Innovations and advantages:
In liver surgery , haemorrhage risk and resection time are the main determinants of the operative outcome. Blood loss during liver transection has been The main innovation is the radiofrequency-assisted coagulating and cutting device with internal refrigeration.
Regarding the advantages, this device has been tested on in-vivo pig liver surgery with significantly improved key surgery parameters versus state-of-theart technology (serum injection technology).

Advantages:
• Significantly lower resection time.
• Significantly lower blood loss per resection area.
• Significantly lower blood loss.
• Higher tissue coagulation depth.
• Lower resection area.
• Higher resection speed.
Additionally, it does not require additional instrumentation to completely coagulate the tissue and stop bleeding.

Current and Potential Domain of Application:
Application in surgical medicine.

Targeted Countries
ALL

Associated Thematic Group
Healthcare

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Disposable Hypodermic Syringe

(Ref: 07 ES CACI 0ID3)

Technology Offer

Abstract:
A Spanish-based company located in Barcelona has patented a disposable hypodermic syringe that solves one of the most serious health problems. Its main advantage is that avoids the possibility to be infected by re-use of syringes, and its consequences in terms of transmission of AIDS and infectious diseases. The company is looking for technical cooperation as well as a license or commercial agreement.

Description:
The disposable hypodermic syringe has been designed by a Spanish for once-only use. It comprises a tube, which is adapted to a hypodermic standard needle, and a hollow piston capable of sliding through the inside of the tube. A spring tends to push the needle towards inside of the tube and a closing device of the piston cavity, making the removal of the needle from this cavity impossible. This action is complemented in such a way as to prevent the removal of the piston from the inside of the syringe's tube, thus making further use impossible. There is also a device with irreversible joining retention appliances, which closes the cavity of the pistons, and which will work together with other complementary joining devices on the head of the needle when they come into contact once the piston has completed its operative run.
Although there have been attempts to come up with disposable syringes to avoid repeated use, the only ones that really work are those which, automatically and without any subsequent handling by the user, prevent any further use.
The application of this technology is important especially in infection working areas, for example AIDS, emergency units, natural disaster units, wars, etc.

Innovations and advantages:
The innovative aspect of the current device is the spring that tends to push the needle towards inside of the tube and a closing device of the piston cavity.

The main advantages are as follows:
- Avoids repeated syringe use.
- Avoids re-infections due to the reuse of the same syringes.
- The invention eliminates the risk of accidents within the health staff.
- Lower production cost with comparison to the current similar devices on the market.

Collaboration Type:

- Joint Venture Agreement
- License Agreement
- Assembly
- Engineering

Comments:
- Type of partner sought: Industry.
- Specific area of activity of the partner: Manufacturer or distributor in the medical devices or moulding sector.

Targeted Countries
ALL

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Healthcare

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Cellular and functional models to study allergic and inflammatory processes

(Ref: 07 ES CACI 0IEG)

Technology Offer

Abstract:
A Catalan company has developed cellular and animal models (especially human and canine cells, and Beagle dogs), to study epidermal modifications in response to different stimuli and in allergic and inflammatory processes. The models are suitable for preclinical studies of new and known compounds targeting allergic and inflammatory conditions. The group is looking for a partner to establish technical cooperation or a commercial agreement with technical assistance.

Description:

In the developed technology it is possible to differentiate between cellular models and animal models of allergy. Cellular models:
- Primary cell cultures (isolation and culture of human and canine skin cells), allow performing functional studies on the epidermal barrier, cutaneous cell proliferation and viability, detection of specific markers of cellular differentiation, and the study of the basement membrane formation, in response to different stimuli.
- IgE mediated mast cell activation: determination of inflammatory mediators released by mast cells when stimulated by immunologic and non immunologic agents, as well as on the ability of different drugs to inhibit or induce an allergic reaction.

Animal models of allergy:
- Experimental induction of hypersensitivity against environmental and food allergens in Beagle dogs as well as characterisation of dog immune response.
- Dermal microdialysis in dog. This technique, developed for the first time in dogs, allows in situ measurement of changes in the concentration of cellular mediators that are produced in the dog dermis after provoking an allergic or inflammatory reaction. The company also performs clinical trials in laboratory and farm animals.

Innovations and advantages:
The Catalan company is a reference in providing new experimental models as successful solutions for specific problems. Also, the company has developed and patented an anti-mite mattress for dogs and cats, and is able to provide new experimental models as successful solutions for specific problems.

Current and Potential Domain of Application:

Inflammation; allergy; skin; cellular models; functional models; animal clinical trials**.**

Targeted Countries

ALL

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Weighing scale with simultaneous detection of the cardiac and respiratory frequency without additional sensors

(Ref: 07 ES CACI 0IHO)

Technology Offer

Abstract:
A research group from a Catalan university based in Spain has developed a measurement method able to detect the heart rate and the respiratory rate from the force sensors included in common electronic weighing scales for bathroom or public use. The device can be useful to monitor cardiac patients and physical fitness. A laboratory prototype is available that can be tailored to any electronic weighing scale. Manufacturers willing to further develop this solution are sought.

Description:
This electronic weighing scale is able to measure the heart rate and the respiratory rate by detecting the changes in weight that result from the heart beat, and uses the very same force sensors included in the scale to obtain the subject's weight. No action other than standing on the scale platform is needed, and no signals are injected into the body, hence there are not any risks for subjects susceptible to electric currents, e.g. those with implanted electronic medical devices or pregnant women.

The capability of simultaneously measuring weight, heart rate and respiratory rate helps in monitoring patients with some cardiac and respiratory illnesses, and also to get people involved in improving their lifestyle by assessing their physical fitness.

A laboratory prototype is available that can be tailored to any electronic weighing scale by adding only a handful of electronic components. The research group that has devised this solution has successfully applied it to different bathroom and pharmacy-type scales.

Innovations and advantages:
Current electronic weighing scales able to measure physiological parameters other then the weight, use either electrodes for body composition estimation, or separate sensors for parameters such as blood pressure, heart rate, and oxygen saturation. Those measurement methods that rely on injecting electrical currents into the body do not suit patients with implanted electronic devices; neither do they suit pregnant women. Further, the additional sensors included into the scale require careful placement of the subject or specific actions such as handling metal electrodes. The measurement method that a Spanish research group has developed and tested does not need any action other than standing on the scale platform, wearing shoes if convenient for the subject, so that the measurement is comfortable, fast, and has a very low cost. The electronic circuits to be added are simple and compatible with those already included in the scale for weight measurement and display.

The proposed technology has the following advantages:

1. Very low cost because no new sensors are added. No need to modify any mechanical elements. The input signal is that from the strain gauges that sense the subject's weight, and electronic circuits based on common industry components yield the information of interest.
2. Very comfortable and simple to use. No need to take shoes off, no sensors attached to the body, no need to stand on specific areas of the platform.
3. Measurement faster than that achieved by methods that require any kind of device to be somewhat attached to the body.
4. No restriction on its use because there is no action on the subject (no electric current or any other form of energy is being injected).
5. Accurate beat-to-beat detection useful for further heart rate analysis, for example after exercising.

Current and Potential Domain of Application:

Weighing scales able to detect the heart and respiratory rates can be useful in home medical care (e-health), pharmacies, fitness centres, sports training facilities and fast health screening of workers.

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Current Stage of Development:

- Development phase - Laboratory tested
- Exploitation of RTD Results
- National Programmes
- Intellectual Property Rights

Collaboration Type:

- License Agreement
- Joint further development

Comments:

The researchers are looking for a manufacturer of weighing scales for either the fitness, home or clinical markets, willing to include in his products the measurement method developed and interested in either the joint development of an industrial prototype, licensing the technology, or both.

Targeted Countries

ALL

Associated Thematic Group

Healthcare

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Semi-synthetic plant-origin polysaccharide for osteoarthritis and related diseases

(Ref: 07 ES CACI 0IHT)

Technology Offer

Abstract:
A privately owned Spanish pharmaceutical company with a leading position within the Spanish pharmaceutical market of chondroprotectors develops, manufactures and sell active pharmaceutical and nutraceutical ingredients. The company is seeking a partner to jointly develop a patent-pending semi-synthetic plant-origin polysaccharide that has demonstrated a potential modifying effect of the biologic activity of the joints for the pharmaceutical market.

Description:
BIS010 could act as a Symptomatic Slow-Acting Drug for Osteoarthritis. It presents structure-modifying properties, so it may delay disease progression and could potentially act as a Structure Disease-Modifying Osteoarthritis drug. In in-vitro chondrocyte cultures BIS010 preserves cartilage integrity. Antiinflammatory activity has also been demonstrated.

Innovations and advantages of the offer:
Experimental data has shown the ability of BIS010 to balance the metabolism of osteoarthritic cartilage by acting on the synthesis and turnover of a number of important compounds in the extracellular matrix of connective tissues. BIS010 has also shown an antiinflammatory effect on the main parameters considered in the inflammation procedure.
BIS010 has shown to have a better efficacy at substantial lower doses than Chondroitin Sulphate, one of the most used SYSADOA (Symptomatic Slow Acting Drugs in Osteo-arthritis) drugs currently on the market. At this stage BIS010 has demonstrated to be completely safe in the in vitro and in vivo models studied.

There is strong evidence allowing to speculate that BIS010 could be indicated for the treatment of chronic inflammatory diseases such as osteoarthritis or rheumatoid arthritis, and potentially others (psoriasis, Crohn's disease, asthma, ulcerative colitis).

Current and Potential Domain of Application Osteoarthritis is one of the most prevalent diseases of industrialised countries, believed to be affecting 16% of their population and forecasted to grow steadily, reaching $7 billion by 2015.
Current most popular treatments target symptomatic effects of the disease such as NSAIDs (Non-Steroidal Anti-Inflammatory Drugs) and COX-2 (cytochrome c oxidase) inhibitors. However, these products have no disease-modifying properties and a history of side effects, which has lead to several molecule withdrawals in the last years.

Targeted Countries

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New gel for separating proteins

(Ref: 07 ES CACI 0IHV)

Technology Offer

Abstract:

A research group from Barcelona (Catalonia, Spain) has developed a novel electrophoresis gel capable of simultaneously separating both small and giants proteins (5/>500KDa), without the need of two different devices. The group is looking for a licensee capable of commercialising the product.

Description:

Polyacrylamide Gel Electrophoresis (PAGE) represents one of the most powerful tools for molecules analysis, as protein. Among several variants of PAGE exist the SDS-PAGE (sodium dodecyl sulphate-PAGE), which allows separating proteins according to their molecular weight with considerable resolution. A Spanish research group has a wide experience in methods for separation of proteins, as well as an extensive knowledge of optimal proportions and reagents mixtures for the preparation of polyacrylamide gels. The technology has been developed on the basis of a need for improvement in work techniques.

The research group has developed a uniform polyacrylamide gel without separation or distorts that allows its manipulation by grabbing it by its bottom dense region. The developed technology includes the correct reagents proportion and the procedure to assemble the obtaining kit.

Innovations and advantages:

The developed gel allows simultaneously separating proteins of high and low molecular weight (5/>500 KDa) through a uniform layer formed by different solutions, all of them polymerised at the same time. It allows working with one device. Its uniformity allows easy use in stain or transferences to different membranes to carry out experiments (e.g. Western-blot). It offers high reproducibility.

Targeted Countries

ALL

Associated Thematic Group

Biotech Pharma & Cosmetics

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Platform Nanotechnology Solutions in Medicine (Diagnosis and Therapy)

(Ref: 07 ES CACI 0IPR)

Technology Offer

Abstract:

A start-up company located in Barcelona (Spain), founded in 2006, develops and licences R&D projects in Nanomedicine. The main areas of research are: Oncology, Central Nervous System (CNS), Cardiovascular and Dermatology and also Nanomaterials. The company is highly talented to design novel strategies using a platform technology and partnering with companies, research institutes, academic advisors and hospitals. The company looks for joint venture and license agreements with industry or academy.

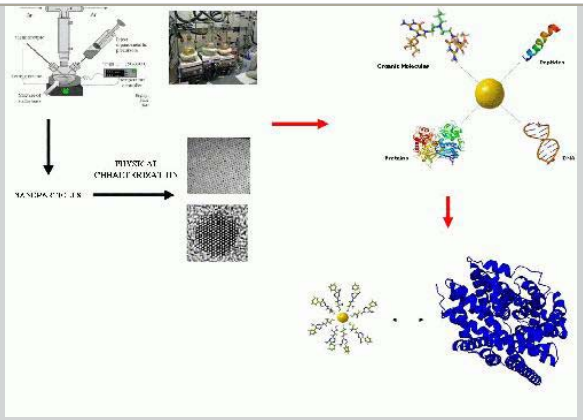
Description:
The company's platform technology exploit the potentialities of using Nanoparticles to improve quality of life:

1. Nanoparticles synthesis:
*Synthesis
Nanoparticles can be tailored with different properties such as fluorescence or magnetic moment. These properties can be harnessed to use them as local control (size, shape, structure and composition) of Nanoparticles:
*Pure metals (Au, Co, Pt, etc…).
*Metal oxides (FeOx).
*Stable stochiometric semiconductor binary mixtures.
*Metallic alloys and a new generation of core-shell structures.

2. Molecular Functionalization:
Selected molecules of interest (organic drugs, peptides, proteins, DNA…) can be conjugated to our nanoparticles. Also, conjugates have to be purified and characterized.

3. Project Development:
Such projects are mainly based in multiple bio conjugates scaffold onto highly performing nanoparticles. The designed nanoparticles have outstanding, optical, magnetic, metallic and biocompatible properties. These unique properties make these nanoparticles ultimate for diagnosis or medical treatment. Each project must be developed into a cascade of assays in order to complete the proof of concept.

Innovations and advantages:
Nanoparticles can be tailored with different properties such as fluorescence or magnetic moment. These properties can be harnessed to use them as local nano-probes or nano-manipulators in biological and medical applications (e.g. fluorescence labelling of cellular compartments, use of fluorescent or magnetic particles as contrast agents, magnetic separation and targeted drug delivery). The related behaviour of mono disperse nanoparticles and molecules, and the ability to produce number of Avogadro of them, makes desirable to dispose of an extended catalogue of size, shape, composition and structure controlled nanoparticles with customized properties.



Current and Potential Domain of Application:

The overall areas of research are:
- Oncology
- Central Nervous System (CNS)
- Cardio
- Dermatology

Targeted Countries
ALL

Associated Thematic Group

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New chemical entities as HIV entry inhibitors

(Ref: 07 ES CACI 0IT3)

Technology Offer

Abstract:
A Catalan university research team has designed, selected from co-receptor models, synthesised and tested (with activities in the range from 20 to 0.008 microg/mL) a library of new anti-HIV entry inhibitors, antagonists of CCR5 and CXCR4 co-receptors. They seek a pharmaceutical company interested in further early clinical development.

Description:
A Catalan university research team has designed a library of new anti-HIV entry inhibitors, antagonists of CCR5 and CXCR4 co-receptors. The synthesised compounds have been selected using in silico structure-based virtual screening with proprietary CXCR4 and CCR5 co-receptor models together with ligand-based tools. The activity tests led to the identification of active substances in the range from 20 to 0.008 microg/mL. These compounds can be considered as promising candidates to be further investigated as a novel class of HIV entry inhibitors.

Innovations and advantages of the offer:
New small chemical entities that block co-receptor interaction will become important tools in the fight against HIV infection and AIDS. In the present invention they have substituted the cyclam rings present in AMD3100, which, being too basic, could be the reason of the toxicity and/or low bioavailability observed for AMD3100, with other less basic and less toxic cyclic or heterocyclic nitrogenated rings, which maintain the inhibitory activity against the CCR5 and CXCR4 co-receptors. The main advantage offered by this virtual screening methodology developed is that it could be easily applied to the development of other new anti-HIV chemical entities.

Current and Potential Domain of Application
- New Antiviral (anti-HIV) Drugs.
- Other speciality chemicals.
- Pharmaceuticals/fine chemicals.

Targeted Countries

ALL

Associated Thematic Group

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Innovative Drug Delivery systems and new formulations

(Ref: 07 ES CACI 0IYC)

Technology Offer

Abstract:
A Catalan specialty pharmaceutical company in the process of expansion is looking for new formulations or drug delivery systems for existing APIs (Active Pharmaceutical Ingredients). The company is seeking to build strategic alliances with either the industry, academy or research organisations.

Description:
The current portfolio of a Spanish company contains drugs for treatment of:
- Psychiatry/neurology.
- Attention-deficit hyperactivity disorder (ADHD).
- Status epilepticus.
- Antiepileptic/anticonvulsive.
- Nephrology/urology.
- Hyperkalaemia.
- Hyperphosphataemia.
- Rheumatology/traumatology.
- Rheumatoid arthritis.
- Paget's disease/osteoporosis.

They are looking for new/complementary therapies related to their portfolio.

Technical Specifications / Specific technical requirements:
New dosage forms especially focused on nanotechnology and innovative modified release formulations (both oral and transdermal applications). Technologies must be patented and applicable to industrial processes, having technical data from pilot batches or similar, and the excipients used must acceptable for pharmaceutical compositions.

Targeted Countries
ALL

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Amorphization and stabilization of active pharmaceutical ingredients (API) for enhanced solubility and bioavailability

(Ref: 07 ES CACI 0J07)

Technology Offer

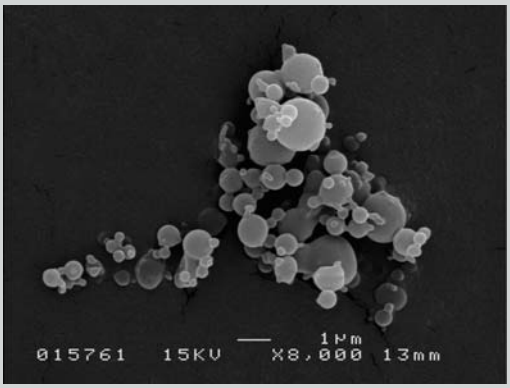
Abstract:
A private drug-delivery company located in Barcelona (Spain) offers its expertise in SCF materials processing using a proprietary technology to enhance drug solubility and create stable amorphous forms. The company is interested in joint research and co-development agreements with pharmaceutical companies and API producers.
The company has an experienced and internationally renowned staff with collectively more than 25 years of experience in the field of supercritical fluids, supercritical fluid precipitation, polymorph separation and high-pressure thermodynamics.

The company is in possession of a new supercritical technology platform capable of enhancing and enabling chemically diverse pharmaceutical actives.

Description:

THE CHALLENGE
Combinatorial chemistry is routinely used today as a method of choice for the discovery of new drugs. Yet, despite its success, the technique frequently optimizes lead molecules that are poorly soluble or completely insoluble in aqueous media. This insolubility causes low total bioavailability and poses a significant challenge to formulators.
Overcoming the solubility challenge has opened possibilities for new solid-state forms with enhanced solubility. Thermodynamically, the amorphous state is the most advantageous in terms of solubility. However, it also has the greatest propensity to revert to other, less soluble solid-state forms during storage. Furthermore, the lack of a crystal lattice can cause increased degradation and even expose new parts of a molecule to chemical attack, thus leading to additional stability storage problems.
Preventing the transition to thermodynamically more stable forms is still a major challenge. Amorphous forms of pure drugs are often unstable and recrystallize easily. This problem is exacerbated with mixtures of drugs, which can also demix in the solid state. In addition, not one, but several different amorphous states can be envisaged using X-ray crystallography, ranging from microcrystalline composites to solid-state solutions in which all components are randomly distributed in a molecular dispersion.
With the aim of solving the physical stability challenge, polymers are usually employed to provide an amorphous matrix in which the drug can dissolve and where the viscosity of the matrix is usually high enough to prevent recrystallization during storage.

THE SOLUTION.
The atmospheric supercritical precipitation process (ASP) is capable of producing amorphous solid states of pure drugs and mixtures of drugs with polymers and excipients. Drug/excipient mixtures are recovered as a fine dry powder in the form of a molecular dispersion to ensure optimal contact between the components.
Active polymers and excipients are usually presented as a single solution. However, it is possible to use suspensions and separate solute streams to provide flexibility when designing the right formulation. The solution is contacted with supercritical carbon dioxide to initiate precipitation at atmospheric pressure. Though the operating temperature can be fine-tuned, it is usually set close to ambient.



Innovative Aspects:
The ASP process is a new technology that uses supercritical CO_2 to produce particles. It combines the advantages of several major supercritical fluid processes without having their respective disadvantages. It is capable not only of producing small particles, but also of handling different solids such as pharmaceutical actives, polymers, lipids and excipients.

Main Advantages:
Contrary to many supercritical fluid precipitation technologies, the precipitation step in the ASP process is done at atmospheric pressure. Furthermore, the drug powder and any excipients are not subjected to high temperatures.

The technology is robust, repeatable, has been proven on the pilot scale and is capable of day-to-day production of powder batches. Only one person with a little technical knowledge is needed to operate the plant.

The company is prepared to work closely with the partner to successfully implement the technology and ensure sound know-how transfer.

Current and Potential Domain of Application:
Production of physically and chemically stable crystalline and amorphous forms of pharmaceutical drugs and drug mixtures with and without excipients.

Generation of microparticles and nanoparticles for enhanced solubility and bioavailability.

Collaboration Type:
- License agreement
- Joint further development
- Testing of new applications
- Joint venture agreement
- Transfer of knowledge in new raw materials
- Absolutely novel process

Comments:
The company is interested in joint research and co-development agreements with pharmaceutical companies and API producers.

Targeted Countries
ALL

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New strategy for prophylactic and/or therapeutic vaccine agains cervical cancer or genital warts.

(Ref: 08 ES 25E2 0ILQ)

Technology Offer

Abstract:

A research group from a University in Barcelona (Catalonia, Spain) has a wide experience on immunological research. They have developed a new strategy to develop a prophylactic and/or therapeutic vaccine for cervix carcinoma or genital warts of viral aetiology. The group is looking for a licensee capable of developing the product until clinical phases. Other kinds of collaboration are welcome.

Description:

Human Papilloma Virus (HPV) infections are extremely frequent, making HPV by far the most common sexually transmitted disease worldwide. Cervical carcinoma is the second women's most frequent cancer. A treatment combining surgery or radiotherapy with chemotherapy is effective if the infection is detected in early phases. Moreover, there are 2 preventive vaccines indicated for cervical cancers associated with several types of HPV.

Prevention and early detection reduce tax of mortality at countries were they are available, but more than 80% are given at developing countries where it is not possible to perform a population screening. Therefore, there is still a need to find a vaccine able to treat cancer at early and advanced phases.

One approach to HPV vaccine development is the use of Virus-Like Particles (VLPs). These particles are not infectious, because resemble the virus without its nucleid acid, eliciting both T cell and B cell immune responses.

A Spanish research group has a wide experience in oncological immunology and biochemical and molecular biology.

The technology has been developed on the basis of a need for a therapeutic immunological treatment. It consists in a new immunogenic construction, based in a chemical modification of VLPs, for the elaboration of a prophylactic & therapeutic vaccine that increases the T lymphocyte response induced by dendritic cells. This construction could be applied to vaccines in current development, based on quimeric or not quimeric VLPs, in order to increase their immunological response.

Innovations and advantages:
The construct fulfils important aims for the development of an effective design of anticancer vaccine:

- It targets the antigen to specific receptors on Dendritic cells, which induce Dendritic cell maturation, activate the antigen presentation and activate the production of Th1 cytokines.
- It can be applicable for the test of antigens, present in early phases of the infection, as well as in advanced phases.
- It stimulates an increased immunological response.
- It avoids the induction of autoimmune pathology.
- It prevents the tumor escape of the immunological recognition.
- Unlike those currently being tested, the technology allows the vectorization of the vaccine to specific receptors.
- It keeps the same advantages as VLPs (Virus Like Particle).
- It is similar to opsonization and allows the use of the same adjuvants like the other vaccines.

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Collaboration Type:
- License Agreement
- Financial Resources
- Joint further development

Comments
Type of partner sought: Big pharma, technological centre, research group.

Specific area of activity of the partner: Immunolgy with capability of in-vitro and in-vivo test.

Task to be performed: Joint development research.

Targeted Countries
ALL

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Innovative platinum-based compounds for the treatment of cancer that overcome cisplatin resistance.

(Ref: 08 ES 25E2 0ILR)

Technology Offer

Abstract:
A research group from a University of Barcelona in the Catalonia region (Spain) has a large experience on the synthesis of biologically active natural and/or synthetic products. They have developed a new family of cis-platinum (II) compounds for the treatment of cancer. The research group is looking for license agreement, but other collaborations will be considered.

Description:
Cisplatin is a very effective platinum cancer drug with important clinical impact in patients with testicular or ovarian cancers. It's widely used, but produces a significant toxicity in kidneys and gastrointestinal tract. A major effort has been done to reduce or remove the severe nephrotoxicity of cisplatin, to provide an oral bioavailability and to overcome tumour resistance to cisplatin, though second and third generations of platinums.

The research group has found a new family of platinum compounds with the following properties:
- They have relevant cytotoxicity activity over several tumour cell lines, especially those corresponding to gynaecologic cancers, resistant and non-resistant to cisplatin.
- They are bicyclic cis-platinum (II) compounds.
- They could be classified as sterically hindered platinum complexes.
- The interaction of these compounds with DNA, as the target biomolecule, is similar to cisplatin.
- They have a lower resistance factor and a better antiproliferative activity in comparision with cisplatin.

Innovations and advantages:
Some patients don't respond to the current treatment, because they develop resistance to drugs such as cisplatin. These compounds could represent a new alternative for those patients, because they show lower resistance factor in comparison with cisplatin.

They circumvent resistance by sterically hindering cellular detoxification by glutathione.

Targeted Countries

ALL

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New chemotherapeutic agents for the treatment of cancer, in particular leukemia.

(Ref: 08 ES 25E2 0ILS)

Technology Offer

Abstract:
A research group from a University of Catalonia (Spain) has developed a new family of compounds for the treatment of cancer, in particular leukemia. The research group has a large experience on the synthesis of biologically active natural and/or synthetic products. The research group is looking for license agreement, but other collaborations may be considered (e.g. financial resources).

Description:
Leukemia is a malignant disease of the bone marrow and blood. It is characterized by the uncontrolled accumulation of blood cells and is responsible for more than 300.000 new cases worldwide.
The treatment for leukemia is complex and depends on many factors (type of leukemia, age, etc.). It includes chemotherapy, biological therapy, kinase inhibitors, radiation therapy, transplant, etc.
The research group has developed a new family of compounds in an attempt to target clear unmet needs, such as the high relapse rates after treatment for some types of leukemia or the little chance of long-term survival for most patients.
They have found a new family of compounds with cytotoxic activity and versatile structure, containing an oxabicycloundecane structure. In particular, a compound has shown to be a potent cancer cell inhibitor towards a wide range of cancer cell lines, in particular over leukemia.
In addition, these new compounds could be classified as antimitotic agents, according to their structure. A detailed study was carried out by the research group in order to find a correlation between the good in vitro results on anticancer activity and the computational docking results.
These new compounds could be used in the same manner as other known chemotherapeutic agents. They may be used alone or in combination with other suitable bioactive compounds.

Innovations and advantages:
- These compounds could represent a new alternative for those patients who are not responding to the current treatment.
- The preparation of the new compounds, also their derivatives, is possible thanks to the versatility of the synthetic methodology. Moreover, it is possible to carry out the methodology using low-cost commercial reagents.

Further Information (Technical Details Concerning the Profile):
- The work comprised synthesis of compounds, docking studies and in vitro tests. - There is an ongoing development plan to perform in vitro assays that could confirm the mechanism of action of these compounds. - Further development could be possible with the collaboration of a partner with capacity for in vivo tests.

Collaboration Type:
-License Agreement
- Financial Resources
- Joint further development

Comments
Type of partner sought: Enterprise or research group.
Specific area of activity of the partner: Cancer research, preferably with in-vitro and in-vivo tests.
Task to be performed: Collaboration on the development of new trials of the molecules.

Targeted Countries
ALL

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Control for assays based on reverse-transcription PCR

(Ref: 08 ES 25E2 0ILT)

Technology Offer

Abstract:
A research group from a Catalan University (Spain) has a wide experience on the study of viruses. They have developed a new control method to quantify viruses present on different matrices like food, blood or environmental samples by reverse transcription polymerase chain reactions. It is based on the use of non-pathogenic Mengo virus strain. They are looking for licensee agreement.

Description:
One of the most critical steps of viruses' quantification in assays based on real-time qRT-PCR is the nucleic acid extraction. The use of RT-PCR for viral contamination detection in food, blood and environmental samples is limited by an inconsistent Ribonucleic acid (RNA) extraction that may lead to false negative results. Therefore, a control for the measurement of the RNA extraction process needs to be implemented.
Furthermore, the development of sensitive reliable techniques for the accurate quantification of viruses including controls to trace the RNA extraction processes is a clear objective to achieve. Thus, the provision of reagents to be used as controls is desirable for the standardization and validation of such techniques.
An Enteric Virus Laboratory from a Catalan University has wide experience in the study of the virological safety of drugs purified from human or animal sources, in environmental virology and food virology.
They have developed a new RNA extraction control method to measure the efficiency of the assays based on real-time qRT-PCR in the quantification of viruses.
A non-pathogenic strain of Mengo virus is used as added control during the critical RNA extraction step. The use of this control in a quantification virus method by RT-PCR is crucial for the accuracy of the final titer of genomes. It allows quantification of different enteric viruses including human and animal picornaviruses (such as enteroviruses, hepatitis A virus, foot-and-mouth disease virus) or caliciviruses such as norovirus that may be present in highly complex samples.

Innovations and advantages:
- The use of a non-pathogenic Mengo strain as a control in a quantification virus process.
- This new control is useful to develop quantification methods or kits to any virus belonging to the picornaviridae family, and to other related families of non-enveloped small RNA viruses such caliciviruses, astroviruses, hepatitis E virus, etc.
- The control method proposed by the research group could be used in the quantification methods by real-time RT-PCR for several enteric viruses such human and animal picornaviruses (among them hepatitis A virus), caliciviruses (norovirus) and astroviruses.
- The non-pathogenic Mengo virus strain as a control is useful for the validation of the quantification methods to detect enteric viruses in complex matrices such as food samples.

Collaboration Type:
- License Agreement
- Financial Resources
- Testing of new applications

Comments
Type of partner sought: Industry or research group.

Specific area of activity of the partner: Virology with knowledge in the food industry.
Task to be performed: Testing new applications.

Targeted Countries
ALL

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New Standardized method and kit for the accurate quantification of Hepatitis A virus

(Ref: 08 ES 25E2 0IM0)

Technology Offer

Abstract:
A research group from a Scientific university in the Catalonia region (Spain) has a wide experience in food and environmental virology. They have developed the first standardised method and a kit for quantification of hepatitis A virus and norovirus in food, clinical and environmental samples by Real time qRT-PCR. The research group is seeking partners to further develop the technology through a co-development and license agreement.

Description:

Hepatitis A virus (HAV) infection is the leading cause of acute viral hepatitis throughout the world. HAV is a potential contaminant of food such as bivalve molluscs, fruits and vegetables. Blood, hemoderivates and environmental sources could be infected by HAV as well.
In the last decade, gastroenteritis and hepatitis in humans caused by consumption of food contaminated by viruses has been increasingly reported. Norovirus (NoV) and HAV are currently the most significant viral food-borne agents worldwide.
For example shellfish grown and harvested from waters receiving urban contaminants is a cause of large outbreaks of infectious hepatitis. The annual incidence of HAV in Europe is approximately 278.000 cases. Therefore it makes necessary the control of its presence in food to ensure the safety.
Food matrices are well-known for their complexity which limits the enteric viruses' detection specifically their efficiency in the quantification.
Therefore there is a need for the development of sensitive reliable techniques for the accurate identification and quantification of enteric viruses such as HAV in food samples to ensure their safety.
A University research group from the Catalonia Region has a wide experience in environmental and food virology, specifically on the development of standardised quantitative methodologies for the detection of viruses in food samples, in particular shellfish and on validations of the virological safety of drugs from human or animal origin. Their research is integrated into the activities of CEN (European Committee for Standardization).
The research team mentioned above has developed a standardised method by real time qRT-PCR (quantification Reverse Transcription - Polymerase Chain Reactions) for an accurate quantification of HAV in food, clinical, and environmental samples.
The possibility to develop a kit for routine diagnostic in these samples is a real breakthrough. This kit would reduce time and labour. The use of this method and its kit monitors the efficiencies of the Ribonucleic acid (RNA) extraction from the sample and the two-step RT-PCR assay. Altogether it provides an accurate estimation of the number of HAV genomes present in a given sample. The use of these two controls to measure the efficiency of the critical steps for the real-time quantification RT-PCR is a great improvement in order to obtain accurate results.
This methodology is currently standardised for an accurate quantification of HAV in food and clinical samples.

Innovations and advantages:
The new quantification method of the hepatitis A virus by RT-PCR from clinical and food samples is a standardised method and its efficiency is improved by the use of a new control process during the nucleic acids extraction procedure.
The developed RT-PCR method is the standard method selected by the European Standardization Body as a reference method to detect and quantify HAV in foodstuff.
Thanks to the new control process during the RNA extraction from the sample, accurate results are obtained.

Collaboration Type:

- License Agreement
- Financial Resources
- Joint further development

Comments
- The research team is looking for an industry partner, preferably with Headquarter or Branch on US and Canadian companies.
- Capacity to manufacture and/or distribute are expected.

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Tasks to be performed by the partner:
Kit development, distribution and sales.

Targeted Countries
ALL

Associated Thematic Group
Biotech Pharma & Cosmetics

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New methods for the solid-phase synthesis of peptides and other organic compounds

(Ref: 08 ES 25E2 0IUD)

Technology Offer

Abstract:
A research group from Barcelona (Catalonia, Spain) has a wide experience on peptide synthesis methodologies. They have developed a new method for the solid-phase synthesis of peptides, directly bound to classical functionalised polystyrene resins without the use of linkers. The group is looking for a license, but other collaborations may be considered.

Description:
Chemical synthesis by solid phase has proven to be an effective methodology for the preparation of peptides, from milligram quantities for research purposes to ton-scale for drug production, because of its advantages in rapidity and good results.
The medium-size peptides (10-40 amino acids) are usually prepared by solid phase using the Fmoc/tBu (9-fluorenylmethoxycarbonyl / terc-butyl) protection strategy and the aid of appropriate linkers to yield the peptide in its more common free carboxy or carboxamide forms. The linkers more commonly used, like the Rink linker (4'-{(R,S)-alpha-[1-(9-Fluorenyl)methoxycarbonylamino]-2,4-dimethoxybenzyl}-phenoxyacetic acid), increase considerably the cost of peptide synthesis.
A research group from a University of Barcelona, in the Catalonia Region, has a wide experience on peptide synthesis methodologies. They have described a new method to synthesize peptides mainly by the Fmoc/tBu strategy (also other compatible protective groups) directly bound onto MBHA (4- methylbenzhydrylamine) resines or similar functionalized resins without the use of linkers, that leads to significant cost savings in large-scale and custom synthesis.
This method consists of a liquid, homogeneous acidolytic reagent that maintains all the advantages of typical TFA (trifluoroacetic)-based acid mixtures.

Innovations and advantages:
A linker is not needed to adjust acidolytic lability to TFA for simultaneous deprotection and detachment steps, thanks to the reagent of the invention. The chemical steps regarding the introduction of the linker are suppressed.

+ The peptide synthesis without the use of the Rink linker could represent ~ 10-20% of cost savings, depending on the peptide.
+ The final acidolytic treatment maintains all the advantages of TFA-based acid mixtures and the peptide may be isolated by the usual procedure (i.e. precipitation with ether).
+ The method is also extensible to:
- Some Boc/Bzl (tert-butoxycarbonyl/benzyl)-type of peptide synthesis.
- Solid phase synthesis of non-peptide compounds.
- Preparation of fully deprotected peptides bound to polymer supports useful for the screening in solid-phase of compounds generated by the "one-bead one-compound" combinatorial chemistry approach.

Collaboration Type:
- License Agreement
- Joint further development
- Technical consultancy

Comments:
The researchers are looking for a license agreement to any company interested in the chemical, pharmaceutical or biotechnology sector.

Targeted Countries: ALL

Associated Thematic Group
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Heart Rate detection without physical contact

(Ref: 08 ES 25E2 0J5K)

Technology Offer

Abstract:
A medium enterprise located in the Catalonia region (Spain) has patented a technology for detecting the Heart Rate of a person without any kind of physical contact. This technology, can be used for many applications, specially for burned patients and also for medical control of the heart of patients. They are looking for partners to include the technology in their products. Other types of collaboration are welcome.

Description:
A medium enterprise from the Catalonia region (Spain) has a wide experience on heart signals processing. Among these activities, they have developed in collaboration with a prestige regional enterprise a patented technology. This technology involves a new sensor which is able to detect the heart rate of a person or an animal without any kind of physical contact with the subject. It should be placed anyway near to the heart.

The potential application is make a step forward in heart rate monitoring without disturbing the patient, or even in cases that an electrode can not be applied (as seriously burned patients). Also the application for veterinary market can be interesting.

They are looking for partners to include the technology in their products. Other types of collaboration are welcome.

Innovations and advantages:
- The technology is able to detect the heart rate without any physical contact, that is much more confortable for the patient under monitorization.

- The technology is simple to include in existing products, and represents an important differentiation from the competition.

- This technology can be used for many applications, being the most important detected so far for burned patients, or just for medical control of the heart of patients in a much more confortable way.

Collaboration Type:
- License Agreement
- Joint further development
- Assembly
- Technical consultancy

Comments:
Type of partner sought: Enterprise with capability to develop technology.
Specific area of activity of the partner: Sensors and medical device.
Task to be performed: To develop and improve technology to be adapted in a differents projects.

Targeted Countries
ALL

Associated Thematic Group
Biotech Pharma & Cosmetics

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Telecardiography: Development and Manufacture specialized on electrocardiograph devices, service analysis and interpretation aimed for telemedical solutions .

(Ref: 08 ES 25E2 0JA0)

Technology Offer

Abstract:
A company based in Catalonia, Spain, develops and deals with electromedical equipment, tele-medical services and diagnosis through the net assistance. Among others, they have experience working with hospitals in the electromedical and cardiology field. They are looking for partners for join collaboration in the research and development of new medical methods involving heart rate signal. Commercial agreements are also welcomed.

Description:
A company from a region of Spain designs, develops and deals in electromedical equipment, tele-medical services and diagnosis through the net assistance.
The enterprise was created by medical engineering professionals and engineering, specialised in the field of electromedicine and cardiology. They have a wide experience on tele-medical and tele-assistance services in the health sector, as well as on the design and development of diagnostic equipment for cardiology. They have already integrated their systems and devices on important hospitals throughout the region and have an extensive know-how on the field of electrocardiography and telemedicine, as well as acquired a valuable experience on medical certifications for their products. Moreover, they have a strong expertise on the use of information and communication technologies (ICT) for remote diagnostic equipment and services aimed to telemedical solutions.

The enterprise is researching on using medical methods and protocols of prognosis and diagnosis applied on the interpretation of cardiology tests. One of their latest developments related to electrocardiography (ECG or EKG) is the T-Wave filter, which attenuates the T-Wave allowing a better interpretation of the P-Wave in tachycardia and flater situations. This solution has been patented by the company. They are now looking for partners for joint collaboration projects on telecardiology solutions. Commercial agreements are also welcomed.

Innovations and advantages:
- Its devices are fully designed to enhance communications systems (Ethernet, port RS-232, USB), Standard Communication Protocols (xml-hl7, DICOM, scp), Communication Software (Gem-Heart Viewer and Gem-Heart Printer) and Web Interpretation Platform (Gem-Heart Centre).
- They use open standards for secure exchange between different systems such as the Standards produced by CEN TC251 (European Committee for Standardisation, Technical Committee for Health Informatics). This allows easy implementation on hospital or health care intra systems.

Collaboration Type:
- Joint Venture Agreement
- Joint further development
- Testing of new applications
- Adaptation to specific needs
- Technical consultancy
- Maintenance

Comments:
Type of partner sought: Enterprise or technological centre with the capability to develop technology.
Specific area of activity of the partner: Medical device.
Task to be performed: Join them and develop new technology.

Targeted Countries : ALL

Associated Thematic Group
Healthcare

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Rapid Prototyping technology for medical application

(Ref: 08 ES 25E2 0JA6)

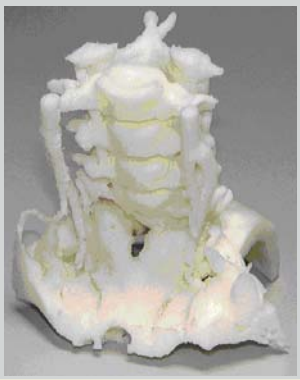
Technology Offer

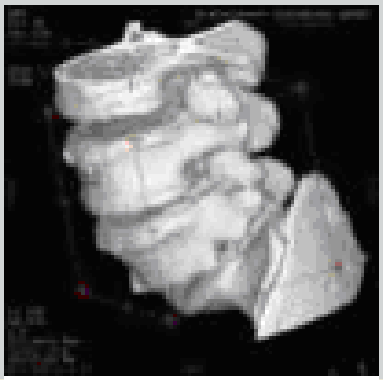
Abstract:
A Private Technological Centre from the Catalonia region has a wide experience improving medical device, also starting new medical projects. One of their new projects that they are developing allows using the rapid prototyping technology to get implants, orthopaedic products and support structures for tissues engineering. They are looking for partners to technological development.

Description:
The use of Rapid Prototyping technologies to obtain final functional products by means of technologies Selective Laser Sintering (SLS) from the computer model (CAD) is known as Rapid Manufacturing or direct manufacture.

A Technological Centre of the Private Foundation goes 3 years developing activities in the field of the rapid prototyping technology, in still incipient but very promising areas and in rapid evolution. They are working at several projects which include from orthopaedic and dental products to the manufacture of implants and cellular supports.
A rapid Manufacturing technology allows obtaining medical implants, being each medical implant is unique due to it is customized to the patient. These implants could be used to patients with clinical diseases and accidents of bone in General hospitals and clinics, for the treatment of i.e. traumatologists, neurosurgeons, dentists. Their new project developed uses technologies of Rapid Manufacturing for substituting parts of the body with medical implants: cranial, maxillofacial, spinal or hip.

They are looking for partners to technological development. Other kind of collaboration could be considered.





Innovations and advantages:

- A customized medical implant using Rapid Manufacturing technologies.
- From a MRI (Magnetic Resonance Image) and a CAD design, it can produce a customized medical implant (cranial, hip, spinal, dental).
- It allows adapting RM's (rapid manufacturing) technologies to the strict requirements of manufacture of this type of biomedical products.
- It allows developing new biomaterials (metal, polymeric, ceramic or compound) processable by means of Rapid Manufacturing, with a suitable biocompatibility that in addition does not turn out to be altered by the manufacturing process.
- The development of biomaterials is based not only on aspects of biocompatibility and implantability in the long term, but also in bioactivity to obtain functional products, with osteo-conductivity, osteo-induction and even reabsorbed materials for temporary fixings or structures of cellular support.
- The technologies of BioRM is allowing the obtaining of solid components that grow cap to cap with systems based on laser or in treated by light UV, among others.

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- To come to final products directly from models 3D without need of conventional tools of manufacture offers the following advantages:
- Rapidity: processes that might need 8 weeks can be obtained in 4 days
- Full customization, specially interesting customization in medical applications
- Saving raw material of high cost
- Automatic, trustworthy and repetitive process, which produces proved pieces with a good dimensional precision and mechanical stability.
- In-home manufacturing: any hospital can own the equipment of BioRM and create its implant in-home, closing the manufacturing cycle.

Collaboration Type:
- Joint Venture Agreement
- Joint further development
- Testing of new applications
- Adaptation to specific needs

Comments:
Type of partner sought: Enterprise preferably with capability of production.
Specific area of activity of the partner: Medical device.
Task to be performed: Join them to develop and improve the technology.

Targeted Countries
ALL

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Healthcare

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Screening method to develop therapeutic compounds to treat neurodegenerative diseases

(Ref: 08 ES 25E2 27IW)

Technology Offer

Abstract:
A research group at a Catalan university working in biotechnology and biomedicine specializes in protein aggregation, protein design, protein engineering and enzymology. The group has developed a protein solubility screening method using yeast as a eukaryotic organism model with applications in the treatment of neurodegenerative disorders such as Alzheimer disease. The group seeks a licensee for technical cooperation.

Description:

Neurodegenerative diseases of growing incidence such as Alzheimer disease (AD) and Parkinson's disease (PD) share a common trait: proteins aggregate and form deposits in internal organs and interfere with normal cell function, sometimes lethally. There is thus increasing interest in the development of protein solubility screening methods to identify genes, chemical compounds and culture conditions that can modulate protein aggregation inside the cell.

A research group at a Catalan university (Spain) working in biotechnology and biomedicine specializes in protein aggregation, protein design, protein engineering and enzymology. The scientists also have extensive experience gained from several projects with academic and industrial partners. The research group has developed a protein solubility screening method using yeast as a eukaryotic organism model.

The method makes it possible to monitor the effect of different factors (mutations, genetic backgrounds, chemical compounds and growth conditions) on protein aggregation related to neurodegenerative disorders such AD, PD and Huntington's disease (HD).

The method is based on fusing the target protein to a key enzyme that is absolutely necessary for cell survival. In the presence of a high affinity inhibitor, the aggregation level of the target protein in yeast correlates with cell survival. Only cells expressing the target protein in its soluble form become viable. Furthermore, the use of a fluorescent version of the inhibitor makes it possible to simultaneously monitor cell viability and the location of the soluble and aggregated protein inside the cell.
To demonstrate the applicability of the assay, aggregation-prone proteins involved in AD, PD and HD were used as models. It was demonstrated that the method is sensitive to mutations, chemical compounds, genetic background and growth conditions that affect the aggregation tendency of the target protein.
Further studies are under way to:
- Develop high-throughput screening in 96 well plates to detect compounds that abolish protein aggregation in the cell.
- Exploit the fluorescent inhibitor to screen genes and mutations in high-throughput mode that modulate cellular protein aggregaion.

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Innovations and advantages:

- A unique solubility protein screening method in yeast based on protein fusion that makes it possible to monitor protein aggregation and the location of aggregates using the signals readout cell survival and cell fluorescence, respectively.
- An easy high-throughput method to monitor protein folding linked to neurodegenerative disorders using cell survival as a signal: the cells that grow are the ones that express a soluble form of the target protein.
- A platform for chemical screening of agents that interfere with protein aggregation that can be used to develop new therapeutic lead compounds targeting protein aggregation and toxicity.
- A platform for genetic screening of genes that modulate protein aggregation in the cell. They will become potential therapeutic targets in neurodegenerative diseases.
- A platform for screening mutations and growth conditions that improve protein folding that can be used in the recombinant expression of proteins with biotechnological applications.

Collaboration Type:
- License agreement
- Technical cooperation:
1. Joint further development
2. Adaptation to specific needs

Targeted Countries
ALL

Associated Thematic Group
Biotech Pharma & Cosmetics

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Novel gene as a cancer biomarker, C-008

(Ref: 08 ES 25E2 27IY)

Technology Offer

Abstract:
A research group working at a research institute at a Catalan hospital (Spain) studies new genes involved in cell proliferation. The group does clinical research and basic research. It has discovered a novel gene (C-008) involved in cell proliferation with applications in the treatment of cancer. This research institute holds a patent and seeks a partner company to further develop the technology through a co-development and license agreement.

Description:
Progress in the biology of cellular senescence is helping scientists understand the mechanism of cancer progression. Recent attempts at senescence bypass screenings have identified several novel putative oncogenes and tumour suppressor genes. Genes whose ectopic expression bypasses replicative senescence are considered potential oncogenes, as the proteins encoded by such genes are detected in immortalized cells and are overexpressed in some types of cancer. These findings have opened new approaches for cancer therapy.

A research group working at a research institute at a Catalan hospital has extensive experience in the identification of new proteins and genes involved in cancer, as well as the development of new tools to use proteins in cancer therapy. The team also has extensive experience in the identification of human tumour biomarkers with prognostic value.

The Research Institute has discovered a novel gene (called C-008) involved in cell proliferation. Its application as a therapeutic target in cancer therapy is being studied.C-008 was discovered by using high-throughput genetic screenings of infective primary mouse embryonic fibroblasts (MEFs) with a cDNA library. Overexpression of the protein encoded from this gene is able to bypass replicative senescence in MEFs and become immortal. Therefore, mRNA and protein studies were performed on a group of colon cancer patients and the results demonstrated that the protein was highly upregulated (35%) in tumours compared to normal tissues from the same patient, based on preliminary data performed in the laboratory.Overexpression of the protein is the cause of the cell immortality. The mRNA and protein of the studied gene is statistically significantly overexpressed in human cancer colon tumours (p= 0.02). A method to test new compounds against this target is effective.

Further studies are under way to:
The protein is being studied in a wider group of colon cancer patients to identify C-008 gene inhibitors. Furthermore, studies in human prostate cancer are being optimized.

Innovations and advantages:
- Novel gene involved in cancer.
- New therapeutic target. Targeted therapies are generally better tolerated, less toxic and provide better patient outcomes.
- Method to test new compounds effective against this target.

Collaboration type:
- License agreement
- Technical cooperation: 1. Joint further development / 2. Adaptation to specific needs

Type of partner sought: Preferably, industrial partner.
Specific area of activity of the partner: Co-development of new trials.
Task to be performed: New trials for the patent.

Targeted Countries
ALL

Associated Thematic Group
Biotech Pharma & Cosmetics

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Novel gene as a cancer biomarker, P-007

(Ref: 08 ES 25E2 27IZ)

Technology Offer

Abstract:
A Research group from a Research Institute of a Catalan Hospital (Spain) works on the study of new genes involved in cellular proliferation. Its research is oriented to the clinical research and basic research. They have discovered a novel gene (called P-007) involved in cellular proliferation with application to the cancer treatment. This Research Institute holds a patent and seeks a company partner to further develop the technology through a co-development and license agreement.

Description:
Progress in the biology of cellular senescence helps to understand the mechanism of cancer progression. Recent attempts at senescence bypass screenings have identify several putative novel oncogenes and tumour suppressor genes. Genes whose ectopic expression bypasses replicative senescence are considered potential oncogenes as the proteins encoded by such genes are detected in highly immortalized cells and over expressed in some types of cancer. These findings open new approaches for cancer therapy.

A Research group from a Research Institute of a Catalan Hospital has a wide experience in the identification of new proteins and genes involved in cancer, also the development of new tools to use proteins in cancer therapy. The team has wide experience as well in the identification of human tumour biomarkers with prognostic value.

The Research Institute has discovered a novel gene (called P-007) involved in cellular proliferation has been discovered. Its application as a therapeutic target is considered in cancer therapy.

P-007 was discovered by using high throughput genetic screenings by infective primary mouse embryonic fibroblasts (MEFs) with a cDNA library. Over-expression of the protein encoded from this gene is able to bypass replicative senescence in (MEFs) and become immortal. Therefore, mRNA and protein studies in a group of colon cancer patients were performed and the results demonstrate that the protein was highly upregulated (61%) in tumours as compared to normal tissues from the same patient. Interestingly, P-007 overexpression correlated with the presence of metastasis in the colon cancer patients.

Laboratory results confirm that the inhibition of P-007 in carcinogenic cells reverts the growth of the human cell lines in vitro studied.
The mRNA and protein of the studied gene is significantly over-expressed in human cancer colon tumours and correlates with the presence of metastasis. A method to test new compounds against this target is effective.

This Research Institute holds a patent and seeks a company partner to further develop the technology through a co-development and license agreement. Relating this patent, clinical studies in prostate cancer are being optimized by the research group. Enterprises interested on prostate cancer are also welcomed.

Innovations and advantages:
- Novel gen involved in cancer.
- New therapeutic target. Targeted therapies are, generally, better tolerated, less toxic and provide better patient outcomes.
- Method to test new compounds effective against this target.

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Collaboration Type:
-License Agreement
-Joint further development
-Testing of new applications
-Adaptation to specific needs

Comments
Type of partner sought: Preferably, industrial partner.
Specific area of activity of the partner: Co-development of new trials.
Task to be performed: New trials relating the patent.

Targeted Countries
ALL

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Biotech Pharma & Cosmetics

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Experience in the development of new diagnostic imaging products adapted to mammography

(Ref: 08 ES 25E2 27JA)

Technology Offer

Abstract:
A healthcare company in Catalonia works on different innovation projects aimed at developing new medical devices for diagnostic imaging of the breast. The company is a pioneer in the field of digital mammography and is looking for companies interested in developing new diagnostic imaging products for mammography and related areas, such as ultrasound and magnetic resonance imaging, for which its experience would be helpful. The company seeks a commercial agreement with technical assistance.

Description:
Medical diagnostic imaging techniques have been much improved in recent years. Advanced hardware, software, physics and other basic scientific research data are necessary to optimize early diagnosis of breast cancer using digital mammography and related areas. A Spanish healthcare company in Catalonia has been working for several years on different innovation projects aimed at developing new medical devices for digital diagnostic imaging of the breast. The company is a pioneer in the field of digital mammography in Spain. The company's main areas of expertise include:
- Contribution to the development of a real-time digital stereoscopic breast biopsy system based on the Phocopix detector.
- Contribution to the development of a state-of-the-art digital imaging X-ray machine.
- Development and implementation of a cooperative working environment based on peer-to-peer technology to give support to a multicentre project on magnetic resonance imaging (MRI) monitoring of the response to radiofrequency ablation therapy in breast cancer.
- 3D reconstruction of stereotactic imaging.
- Image enhancement, correction and reconstruction of digital mammographic images.

The company is working on a new technology in digital mammography and has obtained good results. Improvements could be made to this patent-protected technology in the near future, which is why the company is seeking new cooperation agreements and, specifically, commercial agreements with technical assistance.
The company is also interested in offering its experience in adapting new technologies to mammography applications and other diagnostic-related areas.

Innovations and advantages:
- Clinical know-how needed for the creation of state-of-the-art devices for digital diagnostic imaging technologies for the breast.
- Several years of experience cooperating on new-product development in digital diagnostic imaging in mammography and related diagnostic areas.
- Team created to work on several innovation projects in mammography and related diagnostic areas.

Comments:
Companies interested in launching new products on the digital medical diagnostics market, mammography and related diagnostic areas. The partners must co-develop the technology, contribute their expertise to improve it and test new applications.

Collaboration type:
-Technical cooperation
-Joint further development
-Testing of new applications
-Adaptation to specific needs

Targeted Countries : ALL

Associated Thematic Group : Healthcare

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Novel endovascular approach and surgical procedure

(Ref: 08 ES 25E2 27JE)

Technology Offer

Abstract:
A Spanish healthcare company in Catalonia develops different innovation projects for the development of new medical devices. The company is developing a novel endovascular approach and surgical procedure that is useful in the treatment of aneurysms, particularly abdominal aortic aneurysms. The company is looking for firms that specialize in prostheses and are interested in co-developing and improving this novel invention.

Description:

Abdominal aortic aneurysms are one of the most common kinds of aneurysm. Several approaches have been used to treat this problem, but most of them fail to solve several aspects, which means that some patients currently cannot be treated.

A healthcare company in Catalonia (Spain) is opening new lines of development in endovascular prostheses for the treatment of aneurysms, particularly abdominal aortic aneurysms. Their activities include developing a novel endovascular and surgical approach to treat patients with specific kinds of abdominal aortic aneurysms.

The company's clinical know-how, experience and capacity to develop innovative projects for the design and manufacture of new medical devices have allowed it to open a new line of research to develop products for minimally invasive surgery, thus providing a solution to patients' daily needs.

The company is interested in developing new products and finding firms with the capability to improve and develop these products to meet the needs of the invention. Once all the improvements are made, the companies may be interested in launching the new product on the market. The partner should specialize in prostheses (other specialities may also be considered) and be interested in working on an innovative project.

Innovations and advantages:

- New product for prostheses: treatment of specific abdominal aortic aneurysms.
- New surgical procedure included.
- New device for patients with specific abdominal aortic aneurisms that currently cannot be treated.
- Save patients with high risk of death who cannot be treated with the prostheses currently available.

Collaboration type:
- Technical cooperation
- Joint further development
- Testing of new applications

Type of partner sought: Preferably, companies capable of to improving a new product until the final prototype.

The specific area of activity of the partner: Improving the laboratory prototype and manufacturing the final prototype.

The tasks to be performed by the partner: Co-development of the product, production and/or marketing.

Targeted Countries
ALL

Associated Thematic Group
Biotech Pharma & Cosmetics

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Specialists in implant design and the correction of pectus excavatum

(Ref: 08 ES 25E2 27JF)

Technology Offer

Abstract:
A Spanish healthcare company in Catalonia (Spain) has considerable expertise with innovative projects designed to develop new medical devices. It has extensive experience with implants and new minimally invasive corrective surgery techniques, as well as devices for pectus excavatum and thoracic surgery. The company is looking for firms and industrial partners interested in developing new technological projects with technical assistance.

Description:
Minimally invasive surgery and the devices needed to perform this surgery, such as implants, is an emerging market. Some patients are reluctant to undergo surgery that involves a long hospital recovery time. Some devices and procedures increase patients' perception of risk, especially when it comes to how they are performed.

A Catalan healthcare company has the know-how and capability to develop innovative projects for the design and manufacture of new medical devices. Its expertise has led to a new line of research and experience developing products for minimally invasive surgery and providing solutions for patients' daily needs.
More specifically, the company has considerable experience with implants and new minimally invasive corrective surgery, as well as devices for pectus excavatum and thoracic surgery.

The company is now opening new lines of development and looking for companies interested in research agreements. The company's most recent patent involved a device for use in the surgical treatment of funnel chest. This invention is based on new techniques and ideas for minimally invasive surgery (MIS) device applications.

The company is looking for firms and industrial partners interested in developing new technological projects with technical assistance. Firms interested in bringing new products to the market are welcome.

Innovations and advantages:
- Know-how in implants: corrective surgery for pectus excavatum.
- Experience in joint development projects.
- Source of clinical expertise.
- Experience in development of clinical research for medical devices.

Collaboration Type:
- Technical cooperation
- Joint further development
- Testing of new applications

Type of partner sought: Available to share know-how relating to this technology.

Specific area of activity of the partner: Preferably with experience developing medical devices.

Task to be performed: Co-development.

Targeted Countries
ALL

Associated Thematic Group
Healthcare

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Design and implementation of new synthetic routes for active pharmaceutical ingredients (APIs)

(Ref: 08 ES 25E2 27JG)

Technology Offer

Abstract:
A Catalan technological group (Spain) with wide experience providing professional advice and carrying out applied research and technological innovation projects has experience with active pharmaceutical ingredients (APIs). The company is looking for firms that need new API pathways to implement their research, improve their expertise with APIs and/or co-develop research lines.

Description:
A technological group in Catalonia (Spain) has wide experience providing professional advice and carrying out applied research and technological innovation projects. The company works in organic synthesis, specifically with bioactive compounds, to develop biomedical projects in collaboration with research groups involved in other areas and pharmaceutical companies.
Active pharmaceutical ingredients (APIs) are the chemical substances in drugs that are pharmaceutically active. They can be directly isolated and purified from living organisms or, in the case of difficult extractions, they must be synthesized and modified in the laboratory through chemical reactions.
This technological group is able to design and develop new and innovative synthetic routes for active pharmaceutical ingredients. It designs new pathways to synthesize novel bioactive compounds of potential therapeutic interest. The group offers all its expertise to develop and design new pathways from the beginning, while bearing in mind aspects such as previous analysis and intellectual property rights involved. This specific expertise allows the group to create new pathways for APIs, while considering the needs of firms that are doing research in the API sector, and thus avoid unfocused research.
The group is seeking firms (spin-offs, SMEs, large companies) that need new API pathways to implement their research. Co-development of new pathways and other possibilities are welcome.

Innovations and advantages:
- New design and development of innovative synthetic routes for APIs, while considering the analysis of intellectual property strategies.
- Developing the synthesis of new bioactive compounds of potential therapeutic interest.
- Flexible working and adapting to the partner's real needs.
- Highly qualified staff available to form teams.
- Professional approach: Fluent communication, compliance with budgets and deadlines.
- Work in accordance with a confidentiality agreement and quality management (ISO 9001/2000 regulations).

Collaboration Type:
- Technical cooperation
- Joint further development
- Testing of new applications
- Adaptation to specific needs

Type of partner sought: Pharmaceutical and veterinary companies seeking professional advice and services in the field of organic synthesis.

Specific area of activity of the partner: Organic Synthesis.

Task to be performed: Synthetic design, experimental development, consulting, reports and studies.

Targeted Countries: ALL

Associated Thematic Group : Biotech Pharma & Cosmetics

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High-precision plastic manufacturing

(Ref: 08 ES 25E2 27JK)

Technology Request

Abstract:
A Spanish company located in Catalonia has wide experience manufacturing and marketing medical devices in the areas of respiration, audiometry, sleep and scales. For a new line of devices in the respiratory area, the company is looking for a partner with high-precision prototyping and injection to manufacturing 3D non-metal structures that will make it possible to develop a novel device.

Description:
A Spanish company located in Catalonia has wide experience manufacturing and marketing medical devices.
For a new line of devices in the respiratory area, the company is looking for an industry or technology centre with high prototyping and injection at a specific level of precision. This technology will be used to manufacture 3D non-metal structures based on parallel conduits separated by walls as thin as 50 microns. While this device is used, the air breathed by the subject will pass through this structure.
Advantages should include miniaturization in relation to similar systems and a reduction of the power consumption of the complete device.

Technical Specifications / Specific technical requirements:
- High-precision plastic manufacturing is required (50 microns).
- The technology for manufacturing the 3D structure should be capable of creating walls with a thickness of less than 50 microns on a macroscopic piece measuring 28x28x35 mm.

Other requirements:
- Stability of the structure so that can be manipulated with the hands without damaging the structure.
- Biocompatibility of the material used (EN 10993.1).
- Sterilization with glutaraldehyde solution.
- Low manufacturing cost (< 15 /unit).
- No water vapour should condense on the surface of the structure.

Collaboration Type:
- Technical cooperation
- Joint further development
- Testing of new applications
- Adaptation to specific needs

Type of partner sought: Industry or technological centre:
- The specific area of activity of the partner: High-precision prototyping, high-precision plastic injection.
- The tasks to be performed by the partner: Cooperation in the design of the 3D structure, manufacture of prototypes for validation, manufacture of units as a provider for our production line.

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Integration of standardized printing protocols in the firmware of medical devices

(Ref: 08 ES 25E2 27JL)

Technology Request

Abstract:
A Spanish company located in Catalonia has wide experience with medical devices. The company is working on portable devices based on a microprocessor without an operating system. It is looking for partners that can help it develop a new firmware module.

Description:
A Spanish company located in Catalonia with wide experience with medical devices is working on portable devices based on a microprocessor without an operating system. The device has a USB connection and Bluetooth connectivity. These devices have to be able to directly print reports on low-cost printers, thus avoiding the need for a computer.
The printing protocols of most of the low-cost printers on the market are not available and it is difficult for the company to make its devices compatible with these printers.
The company is looking for a partner to helps develop a firmware module to enable compatibility with external low-cost printers via USB or Bluetooth.

Technical Specifications / Specific technical requirements:
- This firmware module should be based on a standardized printing protocol, such as PictBridge or other.
- Compatibility of the portable devices with most current low-cost printers.

Collaboration Type:
- Manufacturing agreement (subcontracting & co-contracting).
- Transfer of knowledge on new raw materials: Absolutely novel process.

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Aqueous solution for better preservation of tissues and organs before transplantation

(Ref: 08 ES 25E2 27JP)

Technology Offer

Abstract:
A Spanish research group from Catalonia has developed a new aqueous solution for better preservation of tissues and organs, especially for marginal organs such as steatotic livers. The group is looking for industrial partners to license this development.

Description:
A Spanish research group at a university in Catalonia has wide experience with the application of pharmacological and surgical strategies. It has know-how for improving preservation solutions aimed at reducing ischemia-reperfusion injuries associated with transplantation.

Organ transplantation is the treatment of choice for patients with end-stage organ failure states.
The preferred method of organ preservation is simple cold storage, which involves flushing the organ with a preservation solution and storing at 0ºC to 4ºC prior to transplantation. Cold static storage is an effective method of organ transplantation during short periods of ischemia.
There are different preservation solutions on the market, but they do not prolong ischemia for more than 24 hours due to the presence of components with demonstrated undesired effects reported in the literature.
The injury of the graft during cold ischemia and subsequent reperfusion is still an unresolved problem in clinical practice.
Moreover, the use of marginal organs such as steatotic livers is associated with increased risk of primary non-function and dysfunction after surgery.

The research group has developed a new aqueous solution that increases the period during which organs can be preserved prior to transplantation and the number of available organs. The group is looking for a licensee. Partners to co-develop the patent are also welcome.

Further information:
It is planned to test the solution with other abdominal organs and to extrapolate results using a transplantation model in rats and pigs.

Collaboration Type:
- License agreement
- Technical cooperation
- Joint further development

Type of partner sought: Industry or research institute, preferably with interest in acquiring the license.

Specific area of activity of the partner: Co-development in the latest steps of the research.

Task to be performed: Regarding this patent, to provide specific know-how during collaboration.

Targeted Countries: ALL
Associated Thematic Group : Biotech Pharma & Cosmetics

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Myocardial function: Computational framework for modelling and assessing left ventricular (LV) function

(Ref: 08 ES 25E2 27KM)

Technology Offer

Abstract:
A non-profit institution in Catalonia (Spain) has developed new R&D lines in visualization and modelling as a method to distinguish diseases through the visualization of interactive biomedical images. It is looking for companies interested in this technology.

Description:
A non-profit institution in Spain (Catalonia) works with industry by supporting industrial initiatives with the efficiency of a prestigious company.
The institution aims to reproduce the capabilities of biological vision to endow machines with a sense of sight. The existence of natural vision systems proves that there is a general solution for vision systems.
One of the latest R&D lines that the institution is working on is a visualization and modelling module that focuses on developing mathematical tools, interactive visualization environments and augmented reality environments, particularly for biomedical image processing.
Computer graphics techniques and mathematical models are used for the visualization and modelling of anatomic and biological structures directed at facilitating clinical diagnosis.
In this context, the institution has done research on the impairment of left ventricular (LV) contractility due to cardiovascular diseases as reflected in LV motion patterns. The aim is to find a strategy to determine the set of clinical parameters that best distinguish pathological cases.
The method can help in the diagnosis and planning of cardiovascular disease treatments, especially in resynchronization treatments (pacemaker), where proper recovery of normal LV function is not achieved in many cases. The method could constitute a valuable tool to check LV anatomic and functional theories and models, since they provide the experimental data for assessing the validity of existing models.
The institution is looking for companies interested in this technology.

Innovations and advantages:
- From the clinical point of view, this implies that motion is not overestimated in injured (pathological) areas.
- From the image-processing point of view, the algorithm can be easily adapted to other image sequences to extract more reliable motion fields.
- Normality models for (complementary) LV integrity scores (including stains and 2D motion) have been computed. They have explored the performance of several sets of functional descriptors and have provided the necessary (statistical) tools to decide which configuration is best suited for pathology discrimination.

Collaboration Type:
- Technical cooperation
- Joint further development
- Testing of new applications
- Adaptation to specific needs

Type of partner sought: Hospitals, healthcare institutions, medical companies, technological (e.g. medical imaging) companies.

Specific area of activity of the partner: Human health treatments.

Task to be performed: Provide funding support and medical cases (image database with specific pathological groups).

Targeted Countries: ALL

Associated Thematic Group: Biotech Pharma & Cosmetics

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Carbon Fiber based component development for the medical fields of Traumatology, orthopedics, rehabilitation and other medical equipment

(Ref: 08 ES 25E2 27KN)

Technology Offer

Abstract:
A Catalan enterprise has wide experience developing parts and components based on the technology of CFRP (Carbon Fiber Reinforced Plastics). CFRP has good properties to be used in lighted medical devices for i.e. surgery equipment.

They are looking for companies with deep knowledge of the medical equipment market who would like to improve their products through the use of Carbon Fiber. They offer full service with technical assistance relating this field.

Description:
A private enterprise from the Catalonia region has wide experience on the medical equipment field. They are developing many projects and prototypes relating the medical device. Among their latest activities, they have developed a Carbon Fiber based component. It allows use it for medical fields like traumatology, orthopedics, rehabilitation.

As private enterprise, they are located in a very important industrial center. It allows offering engineering services to collaborate easily with European companies who are interested in taking benefit of the special features of CFRP for their products.

CFRP are a kind of material with very advantageous properties when there are high requirements on stiffness and where low weight is a key product feature. CFRP materials can be used in order to achieve lighter medical devices for dentistry, surgery equipment, traumatology, orthopaedics and physiotherapy. Due to their radiolucency they are also very suitable for X-Ray equipment.

The company offers its expertise and its knowledge as technical assistance service starting from the technical feasibility of the use of Carbon Fiber for a defined application and going through the entire development process. Detailed definition of the CFRP product, production process and virtual simulation for the validation of the proposed concept can be added. They can also provide simultaneously, the production of prototypes and small series of CRRP parts.

Innovations and advantages:
Carbon fiber reinforced plastics:
- Can be applied for mechanical components which have high requirements on stiffness and where low weight is a key product feature.
- Offer very advantageous material properties to achieve low weight designs.
- Can achieve complex organic surfaces with reduced wall thickness that tooled aluminum or steel parts could never achieve.
- Are very resistive to many corrosive materials such both in acid as in base environments.
- Have been tested and successfully used for body implants.
- Based materials offer greater transparency to X-ray photons.

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A New Compound for the Treatment of Glaucoma and Ocular Hypertension

(Ref: 08 ES CACI 0JGF)

Technology Offer

Abstract:
A research group from a university in Catalonia has developed a new compound for the treatment of glaucoma and ocular hypertension. This new technology allows treatment without surgery with good results with comparison to currently marketed drugs. They are looking for a licensee.

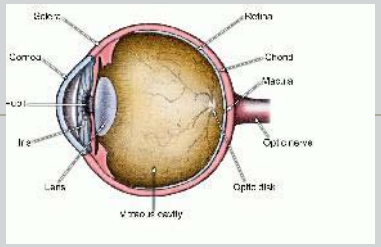
Description:
Glaucoma is the second cause of blindness worldwide. Its global incidence is higher than 4%, and it increases with age. Glaucoma is associated with increased The formulation includes compounds that attain good intraocular pressure reduction and superior lasting effects with comparison to currently marketed drugs. Experimental data shows that its long-term use might not imply sensitisation/tachyphylaxis.

Main advantages include:
intraocular pressure (IOP) within the anterior chamber, which is transmitted to the vitreous cavity. In cases where surgery is not indicated, many drugs have been found to be useful in treating glaucoma, but mostly have potentially serious side effects (e.g. blurring of vision). Some current treatment includes medication (eye drops and pills), laser surgery (trabeculoplasty among others) and incision surgery (trabeculectomy).

The neurophysiology research group of a Catalan University, with ample experience in electrophysiological and optical techniques, function of ion channels, membrane receptors, synaptic transmission and cell cytoskeleton, has developed a new strategy for the treatment of ocular hypertension and glaucoma that attains good intraocular pressure (IOP) reduction and superior lasting effect. The compound has proved to cross the epithelial corneal and other cellular layers arriving to the anterior chamber of the eye, and is thus being developed for topical use.

Innovations and advantages:
The formulation includes compounds that attain good intraocular pressure reduction and superior lasting effects with comparison to currently marketed drugs. Experimental data shows that its long-term use might not imply sensitisation/tachyphylaxis.

Main advantages include:
- Low irritation.
- Compatible with current treatments.
- Superior long-lasting effect.



Targeted Countries
ALL

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Healthcare

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Collaboration Type:
- Testing of new applications
- Transfer of knowledge in new raw materials
- Technical consultancy

Comments
Type of partner sought: Industry or research centre.
Specific area of activity of the partner: Mainly, health area.
Task to be performed: To develop own projects/prototypes with help assistance.

Targeted Countries
ALL

Associated Thematic Group
Healthcare

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Disposable instrument for endoscopic surgery for dissection of lax spaces of connective tissue or as an atraumatic retractor

(Ref: 08 ES CACI 0JMK)

Technology Offer

Abstract:
A Spanish healthcare corporation has developed a surgical instrument for endoscopic surgery, for dissection of lax spaces of connective tissue, in different surgical procedures. The instrument is capable of executing just a double articulation in an element inserted in the interior of the body cavity of a patient in a precise way controlled simply with just one hand by a surgeon. The company is looking for partners from academy or industry to license out the technology.

Description:
This prototype is formed by:
• A pistol grip design instrument for endoscopic surgery.
• The finger-like tip has just two phalanges and is covered with a sylastic cover.
• The longitudinal axe can rotate 360º in both senses.

Assays with live pigs have shown its wide use
(anatomical areas, surgical specialties)in dissecting:
- Pre-peritoneal space in different areas.
- Peri-renal space.
- Peri-prostatic space.
- Peri-oesophageal space and mediastinum?

The instrument facilitates the dissecting task, avoiding haemorrhages or organ perforations, in a very ergonomic way.

Innovations and advantages:
This new mechanical solution emulates the movement and dexterity of a human finger. The mechanical design offers a smooth feedback, guaranteeing safe tissue dissection and manipulation.

Main advantages are:
- Security: the instrument is atraumatic, with comparison to the instruments currently in use for endoscopic surgery, such as: scissors, instruments for dissection, hooks, etc. etc. Due to its reduced diameter (10 mm), the instrument is less sharp and cutting.
- The instrument has been designed for a single use in one patient, therefore after each use it will be thrown away. This advantage clearly solves the possible problems arising from the cleaning and recycling.
- The instrument has similar characteristics as other tools for endoscopic surgery, in order to ensure its compatibility with other instruments currently in use.

Targeted Countries
ALL

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Decision Support System (DSS) for Brain Tumour Diagnosis and prognosis

(Ref: 08 ES CACI 0JMX)

Technology Offer

Abstract:
A Catalan SME (Spain) in consortium with other Universities and SMEs from Europe is offering a DSS to worldwide clinicians (neuro-radiologist, neuro-oncologist, neurosurgeon, neurologist) having to diagnose a patient with an abnormal brain mass suspicious of being a tumour. With the raw-data from the MRS brain scans, the DSS classifies different tumour types, aiming to help the clinician to diagnose a patient without the need of a biopsy. They seek a technical cooperation for further development

Description:
The distributed, agent-based Decision Support System implements a series of automated classifiers based on pattern recognition methodologies. Its approach builds upon previous experiences in biomedical informatics, particularly in image processing and computer-aided diagnosis, where physiological and molecular level tumour discrimination are becoming increasingly used for the early detection of tumours; in machine learning for brain tumour classification using Magnetic Resonance Spectroscopy (MRS) where high classification accuracies have been achieved by various methodologies.

Given that there are several brain tumour types and grades, the development of robust classifiers with a dozen samples of each tumour and (sub)type is per se a daunting task. According to analysts, there are 15000 MRI/MRS centres worldwide; assuming 100 cases per centre, there is a potential requirement for storage and classification of 1.5 million cases. This DSS aims to set the standard for geographically-distributed computer-assisted diagnosis and prognosis of brain tumours.

The Consortium was done in the framework of HealthAgents, a STREP project founded by the European Commission (FP6). This consortium that created the DSS has evolved from several multi-disciplinary collaborations among partners over a number of years. The consortium is proud to have reached critical mass. Most partners participated in the EC FP5 INTERPRET project (IST-1999-10310) and in the eTUMOUR Project (LSHC-CT-2004-503094). In addition to the standard partnership status, a large number of European clinical and scientific expertise groups in MRS of brain tumours are cooperating externally. Among the nine partners of HealthAgents, there are seven educational and research institutions, and 2 SMEs. There are as well as several some hospitals as subcontractors.

MRI = Magnetic Resonance Imaging

Innovations and advantages:
The DSS is the only one that aims at building a distributed network world wide to attract as many cases as possible to make possible the development of all classifiers for all types and subtypes of brain tumours, with the final aim of avoiding biopsy in the diagnosis of the patients.

Diagnosis using Magnetic Resonance Imaging (MRI) is non-invasive, but only achieves 60-90% accuracy depending on the tumour type and grade. The current gold standard classification of a brain tumour by histo-pathological analysis of biopsy is an invasive surgical procedure that incurs a risk of 1-2% morbidity and costs some thousands of Euros'. The Magnetic Resonance Spectroscopy (used to provide this new service) is a non-invasive method for brain tumour diagnosis, to aid patient management and treatment, trying to decrease the risk of morbidity, the stress of the patients and also the cost of the classification to some hundreds of Euros'. Then, its benefits are both financial and medical.

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Collaboration Type:
- Joint further development
- Testing of new applications
- Adaptation to specific needs
- Assembly
- Engineering
- Technical consultancy
- Quality control
- Maintenance

Comments:
- Looking for clinical centres interested on testing the system and able to join the network and contributing with more data to improve the classifiers.
- Also looking for researchers in the field of Medical Diagnosis that would contribute to the deployment of the system in their local regions adding additional functionalities into it.
- Finally, also looking for fellow researchers in the IT field to cooperate with, applying similar technology in other application areas.

Targeted Countries
ALL

Associated Thematic Group
- Biotech Pharma & Cosmetics
- Healthcare

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In vivo models suitable for preclinical validation of new therapies against human pancreatic cancer

(Ref: 08 ES CACI 0JP4)

Technology Offer

Abstract:
A biological research group from a Science University in Catalonia has a wide experience in preclinical validation in vitro and in vivo of new drugs or agents. Recently, they have developed and characterised a panel of orthotopic xenografts by direct implantation of surgical fragments suitable for testing new therapies in human pancreatic cancer. They are looking for partners to technical cooperation and/or commercial agreement.

Description:
Most of the designed strategies are based on drug combinations upon the knowledge of the altered signalling pathways in such tumours.
Among their research:
- The study of treatment responses is hampered by the lack of feasible and predictive preclinical models to reproduce the complex tumoral architecture and they have generated a panel of pancreatic orthotopic models in athymic mice by direct implantation of surgical fragments from 11 cancer patients.
Reflecting a wide range of pathobiological features and genetic alterations, these xenografts display high and predictable take rate with growth kinetics very similar between several generations. Either collectively or selectively, these models may be used as a markedly improved in vivo tool for preclinical and molecular studies of pancreatic cancer.
These in vivo models may be considered, by now, the most related model to the clinical of human pancreatic tumours. Their use could result in a better predictive potential of preclinical assays with the aim of improving clinical responses and the bad prognosis of this cancer.
The researchers have a wide experience in developing in vivo models suitable for testing new therapies. They work studying new therapeutic strategies for human pancreatic tumour treatment based on drug combination, also on tumour suppressor function reintroduction.

Innovations and advantages:
- The study of treatment responses is hampered by the lack of feasible and predictive preclinical models to reproduce the complex tumoral architecture and behaviour. The availability of cancer tissue material is essential for this goal, and the amount of tumour that can be obtained from a pancreatic cancer patient is scarce and cannot be experimentally modified.
- Most human pancreatic tumour models have been generated from pancreatic cancer cell lines, either injected subcutaneously (s.c.) or intrapancreatically in nude mice. However, they do not recapitulate the cellular and molecular heterogeneity present in a tumoral mass. On the other hand, differences in growth and in response to antineoplasic drugs between s.c. and orthotopically implanted tumour fragments in nude mice suggest that implantation site may alter the molecular regulation of tumour cells.
- The direct implantation of tumoral fragments in the pancreas of athymic mice and their cryopreservation allows obtaining preclinical models covering these needs.

One of the main advantages is that accurate preclinical validation of therapies may economise the drug approval by minimising the number of clinical trials.

Targeted Countries
ALL

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A bipolar saline-enhanced catheter for radiofrequency tumour ablation combined with a unipolar sealing system

(Ref:08 ES CACI 0JRA)

Technology Offer

Abstract:
A Catalan research group based in Spain invented a catheter for radiofrequency ablation of tissue, with application for liver tumour ablations. The catheter embeds two bipolar electrodes and several independent perfusion systems to achieve the thermal lesion. Several unipolar electrodes can be incorporated in the same catheter in order to achieve the adhesion to the tissue and the injection of saline through the tissue. The group seeks partners for license or joint venture agreements.

Description:
The use of Radio Frequency (RF) interstitial thermo ablation to destroy tumours is based on the physician's ability to insert a needle-electrode into the tumour under ultrasound or computed topographic guidance. Recently there has been marked interest in image-guided RF tumour ablation as a minimally invasive thermal therapy, especially for focal metastatic and primary liver tumours, given the significant morbidity and mortality of standard surgical resection and the large number of patients that cannot tolerate such radical surgery.

Conventional RF application implies a rapid rise of temperature to more than 100ºC at the tissueelectrode interface, which causes desiccation and coagulum formation. Currently, existing technology is limited in that only 3.5 to 4 cm diameter (about 33 cm3 volume of tissue) may be ablated in a single cycle. Thereby, to treat tumours larger than 2.5 cm in diameter (including at least 1 cm margin of healthy tissue rim) multiple overlapping ablations are required
to encompass the tumour and the surrounding healthy tissue rim.

One way to partly solve the problem of the unipolar mode that arises from the disadvantageous electric field distribution is to use the bipolar mode, where the probes are both active and placed close to each other in the liver. Unfortunately with this approach only a slight increased lesion size can be obtained because of the above-mentioned phenomenon of increased impedance around the electrodes. Thus the lesions may never become confluent if the electrodes are separated more than 2-3 cm.

Another potential strategy to increase the efficacy of RF ablation is to infuse NaCl solutions into the tissue through the active electrodes in a unipolar or bipolar way. Unfortunately, with these unipolar salineenhanced electrodes irregularly shaped areas of coagulation have been observed with limited control of lesion size. With this method as with any unipolar method the current has to flow from a small active electrode with less surface and more impedance through the body up to a much larger electrode often referred to as a "return electrode" (placed on the patient's thigh or back). During the infusion of saline any diffusion from the saline path might be connected to the return electrode, with an infinite number of possible electric field lines. Therefore, RF energy can be dissipated at any distance if the path is connected with the needle electrode through the saline solution.

This can be the best explanation for the lack of predictability of the lesions achieved with this method. Furthermore, with the conventional application of a saline-enhanced electrode in a unipolar way a dangerous reflux of heated saline through the puncture and extended to the biliary system have been described. Some severe complications of the method have been attributed to this phenomenon. To reduce the risk of distant damage and to improve the regularity and predictability of lesion shape, a Spanish research group introduced a saline-perfused bipolar electrode. This configuration might focus dissipation of RF energy between the two electrodes. With this method uneven diffusion of saline may occur as well, but the saline that is away from the area in between the two electrodes will not dissipate RF energy. Furthermore in the bipolar mode the electric field gradient does not drop as sharply as in the unipolar mode, and also stays fairly constant in the region between the probes. This advantage also becomes apparent when comparing the temperature distributions of the alternating unipolar mode and the bipolar modes.

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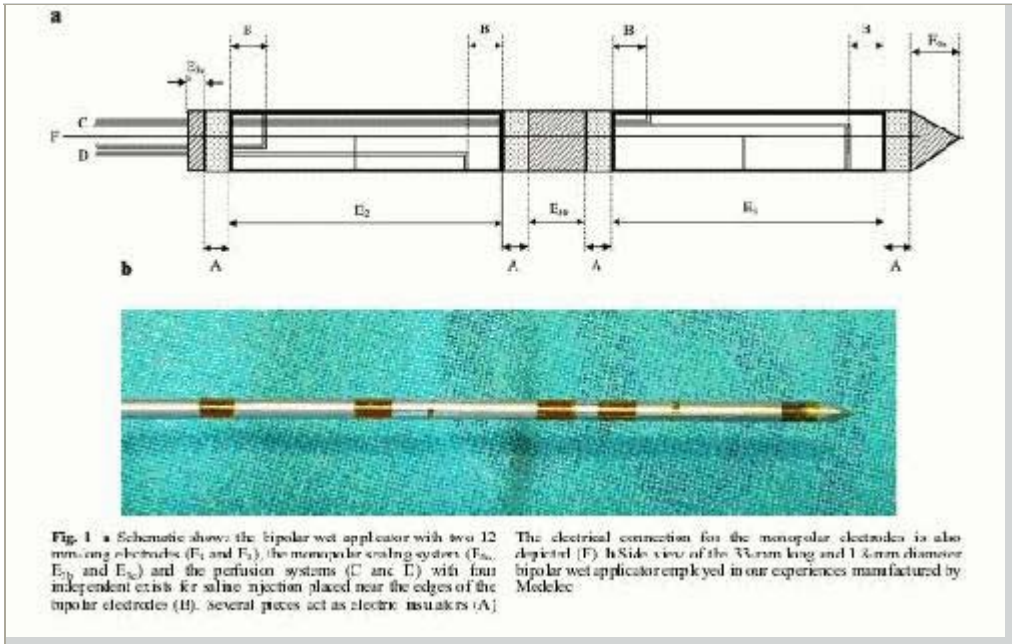

Fig. 1 a Schematic shows the bipolar wet applicator with two 12 mm-long electrodes (E_1 and E_2), the monopolar cooling system (E_{3a}, E_{3b} and E_{3c}) and the perfusion systems (C and E) with four independent exists for saline injection placed near the edges of the bipolar electrodes (B). Several pieces act as electric insulators (A). The electrical connection for the monopolar electrodes is also depicted (F). b Side view of the 33-cm long and 1.8-mm diameter bipolar wet applicator employed in our experiences manufactured by Medelec

Targeted Countries
ALL

Associated Thematic Group
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Protein product for the treatment of sepsis and other inflammatory/infectious diseases

(Ref: 08 ES CACI 0JRO)

Technology Offer

Abstract:
A research group from a science university in Barcelona (Catalonia), has extensive experience with immunology, specifically receptors of the innate and adaptive immune system. The group has developed a compound (a recombinant soluble form of the human CD6 protein) with a new mechanism of action for the treatment of sepsis that reduces mortality by up to 70% in an in vivo murine model. The group has a development plan for more in vivo tests and the synthesis of new compounds. The group is looking for a license agreement and other kinds of collaboration.

Description:
Sepsis is defined as the presence of an infection accompanied by evidence of a systemic response called the systemic inflammatory response syndrome (SIRS). Systemic inflammation and disordered coagulation can lead to organ failure and death. As a disease, it is a major unmet medical challenge that has no satisfactory treatment. In Europe and the United States, 1.5 million people develop sepsis annually. There is a strong demand for new agents for the treatment of sepsis.
The initial step in the pathogenic cascade of sepsis is the release of immune modulators such as cytokines, which are triggered by endotoxins and exotoxins from different types of microorganisms (e.g. lipopolysaccharide (LPS), an endotoxin found in the outer membrane of Gram-negative bacteria).
The research group has extensive experience in the functional and structural analysis of receptors of the innate immune system. It has developed a recombinant soluble form of the human CD6 protein (called rshCD6) that has proved:
- To bind to bacteria (LPS in Gram-negative and LTA in Gram-positive), virus and fungi.
- To aggregate both Gram-negative and Gram-positive bacteria. This aggregation could facilitate pathogen and endotoxin clearance from circulation, thus reducing subsequent inflammatory processes.
- To inhibit the activation and proliferation of T lymphocytes due to different stimuli.
Datafrom preclinical studies demonstrate that rshCD6 provides significant benefit in a standard murine model of septic shock. Mice treated with the protein showed increased survival (up to 70%) and dramatically reduced inflammation compared to placebo-treated animals. Hence, this agent has therapeutic potential to treat sepsis in an efficient way and could provide an answer to cure this disease in the future.

Innovative aspects:
- New mechanism of action for the treatment of sepsis.
- The rshCD6 protein could be used as a drug with a wide spectrum of action against microbial mediators: not only Gram-positive and Gram-negative bacteria, but also viral and fungal agents. Therefore, it may be possible to administer it without the need to identify the pathogen.
- It offers a complementary mechanism of action to antibiotics against microbial mediators and a complementary mechanism of action to steroids against immune effector cells.
- Soluble CD6 is a physiologically existing molecule. A low safety risk is expected from the administration of rshCD6.
- rshCD6 has been shown to have a wide spectrum of action against pathogen agents, as well as anti-inflammatory properties. It has provided promising results in the reduction of mortality in a standard in vivo murine model.
- New mechanism of action that is potentially compatible with and complementary to current standard treatments.
- This recombinant protein could be used in the treatment of other inflammatory processes due to its action with the adaptive immune system.

Collaboration Type:
- License agreement
- Joint further development

Targeted Countries: ALL

Associated Thematic Group: Biotech Pharma & Cosmetics

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Compounds for the treatment of Alzheimer's disease

(Ref: 08 ES CACI 0JZN)

Technology Offer

Abstract:
Treatment of Alzheimer's disease. Sodium tungstate produces a significant decrease in tau hyperphosphorylation by the GSK3 enzyme (glycogen synthase kinase-3), which is one of the major pathological hallmarks of Alzheimer's disease. The research group is looking for a pharmaceutical company to license the technology.

Description:
Neurodegenerative disorders can be defined as chronic and progressive disorders of the nervous system affecting neurology and behavioural functions. These disorders start with specific biochemical changes and ultimately lead to distinct histopathology and clinical syndromes. Among such disorders is Alzheimer's disease.

The research group has developed a phase II study for the treatment of Alzheimer's Disease using tungstate (VI). The group has extensive experience working with tungstate (VI) and its applications. It has patented another application for this element in the field of biochemistry and medicine.

In Alzheimer's disease and other tauopathies, the tau protein displays biochemical aberrations, of which hyperphosphorylation is the most striking. The technology developed is related to the enzyme GSK3 (glycogen synthase kinase-3), which is involved in the process of abnormal hyperphosphorylation of tau protein, which is over-expressed in the brains of patients with Alzheimer's disease.

Several inhibitors of GSK3 are known, but the associated toxic side effects and concerns regarding the absorption, distribution, metabolism and excretion of the known inhibitors affect their clinical potential. The research group has worked to obtain GSK3 inhibition through oral administration of sodium tungstate, and good results have been verified in animal neuronal cells.

Innovative Aspects:
- First treatment for Alzheimer's involving the use of tungstate.
- Shows improvement because it is not toxic like similar compounds on the market.

Main Advantages:
- Phase I clinical trials for obesity show low toxicity, high bioavailability and a half-life of 22 hours.
- The product in phase II can be used for the treatment of other diseases such as schizophrenia.

Collaboration Type:
- License agreement

Targeted Countries: ALL

Associated Thematic Group : Biotech Pharma & Cosmetics

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Drug design assisted by automated X-Ray crystallography

(Ref: 08 ES CACI 0JZT)

Technology Offer

Abstract:
A scientific platform located in a Catalan science park has experience on the crystal analysis by XRay diffraction. It is operated by experienced researchers, and it is equipped with state-of-theart tools. They are looking for partners to joint development of research projects. Other kinds of collaboration are welcome.

Description:
The automated crystallisation process, together with the analysis of the crystals by X-ray diffraction, allows a very precise and unambiguous characterisation of the way drugs interact with their ligands. As a result, drug developers can modify the structure of their drug candidates, or they can screen a large library of compounds to find the best candidate. The crystallisation of molecules takes place in tightly controlled conditions, and is monitored regularly to ensure that the diffraction assay is carried out on the best available material. The analysis of the diffraction patterns allows the reconstruction of 3D models of the molecule interactions.

A non-profit scientific organisation has experience on crystallography and analysis of X-Ray diffraction. They are mostly geared towards the pharmaceutical sector. Among other areas, they provide advice on drug design based on the interactions of potential drugs with their targets. To do so, they use the analysis of X-Ray diffraction patterns after cocrystallisation of both molecules. It allows make studies for particular cases depending on the need, both of industrial R&D and basic research. As leading researchers in the field, they offer their expertise and know-how to advise on the design of the projects and carry them out. They are open to collaborations with academic and industrial partners.

Innovations and advantages:
This is a knowledge-based technique, which allows making decisions based on the actual structure of the drug-ligand, and not on predictions or black-box screening methods. The time wasted on underperforming drug candidates can be cut by pre-screening only the molecules that fit best the active site of the ligands of interest.

Targeted Countries
ALL

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Structural analysis by nuclear magnetic resonance

(Ref: 08 ES CACI 0JZU)

Technology Offer

Abstract:
A NMR (Nuclear Magnetic Resonance) facility in a Catalan scientific research support centre has developed know-how on working with NMR techniques for the study of proteins and biomolecules. They are looking for an enterprise or research centre for technical collaboration.Any type of collaboration is welcomed.

Description:
NMR (Nuclear Magnetic Resonance) is a wellestablished technique used to elucidate the chemical structure of organic samples like natural products, synthetic compounds and high-weight biomolecular compounds (proteins, polysaccharides, DNA, RNA). Among other applications, it allows the determination of conformational changes in structures and the study of dynamic processes. It provides accurate information when used as analytical tool by synthetic chemists, also focused on drug design protocols, so it offers a good structureactivity relationship. A Catalan scientific platform with NMR facilities has the expertise to work with NMR techniques. The NMR laboratories are organised in three different areas depending on the intensity of the different NMR equipments' magnetic fields. A total of 10 NMR instruments, ranging from 300 to 800 MHz, are offered.

The research team at the NMR facilities has developed extensive know-how to offer to the scientific community. Their activities include helping to either large industries or SMEs as well as basic researchers. Helping with technical consultancy, they advise on the use of NMR technique for the study of new molecules and products. They are looking for enterprises or research centres that would want to collaborate in the study of new molecules or products.

Innovations and advantages:
The recent incorporation of two cryoprobes to the highest-field magnets (600 and 800 MHz) provides an important improvement, as far as sensitivity is concerned, and makes it even a more powerful tool for the detection of very low amounts of impurities. High-field NMR techniques require equipments with a high maintenance/cost ratio, which in general are difficult to cover by a single company, and a highly qualified staff to keep them in optimal conditions. The fact that a public institution can offer such technology to the private sector gives a good chance for SMEs and spin-offs to get access to expensive machinery at a competitive and reasonable price.

Current and Potential Domain of Application:
Current and potential users of these NMR facilities belong to the basic research area and to pharmaceutical and organic chemical companies that are interested in sub-contracting the analytical services provided on the basis of the different NMR equipments available either to characterise newly synthesised products, detect impurities, or to carry out studies of molecular interactions.

Targeted Countries
ALL

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New methods for the solid-phase synthesis of peptides and other organic compounds

(Ref: 08 ES CACI 0K7Z)

Technology Offer

Abstract:
A research group from Barcelona (Catalonia, Spain) has wide experience in peptide synthesis methodologies. They have developed a new method for the solid-phase synthesis of peptides, directly bound to classical functionalised polystyrene resins without the use of linkers. The group is looking for a licensee, but other collaborations may be considered.

Description:
Chemical synthesis by solid phase has proven to be an effective methodology for the preparation of peptides, from milligram quantities for research purposes to tonne-scale for drug production, because of its advantages in rapidity and good results. The medium-size peptides (10 to 40 amino acids) are usually prepared by solid phase using the Fmoc/tBu (9-fluorenylmethoxycarbonyl/terc-butyl) protection strategy and the aid of appropriate linkers to yield the peptide in its more common free carboxyl or carboxamide forms. The linkers more commonly used, like the Rink linker (4'-{(R,S)-alpha-[1-(9-Fluorenyl) methoxycarbonylamino] - 2 , 4 - dimethoxybenzyl}-phenoxylacetic acid), increase considerably the cost of peptide synthesis.

A research group from Barcelona, in the Catalonia Region, has wide experience in peptide synthesis methodologies. They have described a new method to synthesise peptides mainly by the Fmoc/tBu strategy (also other compatible protective groups) directly boundon to MBHA(4 -methylbenzhydrylamine) resins or similar functionalised resins without the use of linkers, which leads to significant cost savings in large-scale and custom synthesis. This method consists of a liquid, homogeneous acidolytic reagent that maintains all the advantages of typical TFA (trifluoroacetic)-based acid mixtures.

Innovations and advantages:
A linker is not needed to adjust acidolytic lability to TFA for simultaneous de-protection and detachment steps, thanks to the reagent of the invention. The chemical steps regarding the introduction of the linker are suppressed.

Main advantages are:
* The peptide synthesis without the use of the Rink linker could represent ~ 10 to 20 % of cost savings, depending on the peptide.
* The final acidolytic treatment maintains all the advantages of TFA-based acid mixtures, and the peptide may be isolated by the usual procedure (i.e. precipitation with ether).
* The method is also extensible to:
- Some Boc/Bzl (tert-butoxycarbonyl/benzyl)-type of peptide synthesis.
- Solid-phase synthesis of non-peptide compounds.
- Preparation of fully de-protected peptides bound to polymer supports useful for the screening in solid phase of compounds generated by the "one-bead one
-compound" combinatorial chemistry approach.

Targeted Countries
ALL

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Treatment of infectious/inflammatory processes of fungal origin

(Ref: 09 ES 25E2 2S3D)

Technology Offer

Abstract:
A research group at a hospital in Catalonia (Spain) has extensive experience with immunology. It has developed a recombinant soluble for the prevention and treatment of fungal infections, fungal septicemia and similar disorders. The group is looking for a licensee.

Description:
Sepsis is defined as the presence of an infection accompanied by evidence of a systemic response called the systemic inflammatory response syndrome (SIRS). Systemic inflammation and disordered coagulation can lead to organ failure and death. As a disease, it is a major unmet medical challenge that has no satisfactory treatment.
CD5 is a transmembrane receptor and a lymphoid member. Cells that express CD5 on the surface recognize and have more affinity for fungal cells.
A research group at a hospital in Catalonia (Spain) has developed a recombinant soluble of CD5 for the prevention and treatment of fungal infections. It is also valid as a treatment for fungal septicemia and inflammatory disorders not affected by fungal components.
This soluble form has been shown to:
- Cause prophylaxis in vivo by itself in the presence of fungal infections.
- Bind and aggregate fungal cells.
- Have a protective effect in septic shock in a murine model (mice treated with the protein showed increased survival compared to control animals).

These results support the therapeutic activity of the administration of the soluble form of human CD5 for the treatment of septic shock and other inflammatory processes of fungal origin. The researchers are looking for a licensee.

Innovations and advantages:
- Administration of the soluble form of CD5 as a prevention and/or treatment of fungal infection and/or septicaemias of fungal origin.
- Prophylaxis and early treatment of fungal infections and fungal septicaemia.
- New mechanism of action that is potentially compatible with and complementary to current standard treatments.
- Soluble CD5 is a physiologically existing molecule. A low safety risk is expected from the administration of CD5.
- This recombinant protein could be used for the treatment of other inflammatory processes due to its action with the adaptive immune system.

Collaboration Type:
- License agreement.

Type of partner sought: Industry.

Specific area of activity of the partner: Specialist and/or with knowledge of inflammatory diseases.

Task to be performed: Improve the technology relating to the patent.

Targeted Countries: ALL

Associated Thematic Group : Biotech Pharma & Cosmetics

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Crystalline salt selection of active pharmaceutical ingredients

(Ref: 09 ES 25E2 3COC)

Technology Offer

Abstract:
A non-profit R&D centre located in Catalonia (Spain) has extensive experience in the field of crystalline salt selection of active pharmaceutical ingredients. It has an innovative, in-house-developed methodology in the field of solid-state development of active pharmaceutical ingredients (APIs) and intermediates. The group is looking for firms in the pharmaceutical industry interested in salt selection and scale-up services.

Description:
Preparation of a salt is the classical strategy to optimize the solid-state properties of an active pharmaceutical ingredient. Salt derivatives are often chosen instead of the free acid or base, as they can improve several characteristics of the pharmaceutical compound, including crystallinity, solubility, hygroscopicity and stability.
Salt selection is usually part of the preformulation studies carried out during preclinical development, where it can improve product development.
A non-profit R&D centre located in Catalonia (Spain) has extensive experience with chemical industries. It has extensive expertise in the area of solid-state development of active pharmaceutical ingredients (APIs) and intermediates, more specifically in the field of crystalline salt selection. The group performs systematic and fast salt screening studies to discover and select the salt derivatives of active pharmaceutical ingredients (APIs) with optimal solid-state properties, as well as scale-up of reliable methodologies to produce the selected salt. The group is looking for firms interested in salt selection services.

Innovative Aspects:
-Optimized, in-house-developed, crystallization screening methodology based on the combination of several crystallization procedures.
-Use of high throughput crystallization equipment.
-Crystallization controlled by highly skilled scientists to maximize the information drawn from each experiment.

Main Advantages:

-Extensive expertise in solid-state development of active pharmaceutical ingredients.
-State-of-the-art scientific equipment for the characterization of pharmaceutical solids.
-Projects carried out in close collaboration with clients and adapted to their needs.
-Projects carried out under strict terms of confidentiality.
-Quality Management System in compliance with ISO 9001:2000 (certification by IQNet and AENOR).

Collaboration Type:
- Technical cooperation
- Joint further development
- Testing of new applications
- Adaptation to specific needs
- Manufacturing agreement: Change in partner seeking technologies currently used (installations, process, facilities)
- Commercial agreement with technical assistance
- Technical consultancy

Comments:
The group is looking for companies in the pharmaceutical or fine chemicals industries interested in services in the field of solid-state development of active pharmaceutical ingredients (APIs) and intermediates.

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Catalan Technology Profiles

Technology Request

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Over-expression of transcription factors in embryonic and neural stem cells in order to induce differentiation for cell replacement in Huntington's disease.

(Ref: 07 ES CACI 0HOY)

Technology Request

Abstract:

A research group from a Catalan university with expertise in transcription factor and stem cells is looking for partners, from industry or academia, for further development of the technologies in use in this field.

Description:
A Catalan group is looking for partners with expertise in molecular biology technology to develop new knockout mouse models or to perform viral vectors to over-express their transcription factors in vitro and in vivo.

Technical Specifications / Specific technical requirements:
The technology sought should be related with the creation of viral vectors, lentivirus and with the development of knockout mice with the desired characteristics.

Targeted Countries
ALL

Associated Thematic Group
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High-speed isolation of adult mesenchymal stem cells from lipoaspirate.

(Ref: 07 ES CACI 0HR0)

Technology Request

Abstract:
A Catalan technology transfer centre has developed a technology to isolate human adult mesenchymal stem cells. They are looking for an industrial partner with industrial activity capable of developing the system into a kit. The industrial part must cover the logistics and the package of the kit. The partner sought should have expertise in biotechnology, especially in bone reconstruction.

Description:
A Catalan research unit is specialised in the development, application and transfer of molecular and cellular technologies. As a research centre it allows detailed characterisation of the cell behaviour and the mechanism of action of new roducts. Within this line of research, the main aim is to use those cells as a model to produce differentiated cultures in the lab to perform studies on safety and mechanism of action.
The main aim is to develop a kit wit all reagents, protocols, etc. needed to isolate those cells in the surgery room to produce cells that can be applied to patients together with biocompat ble materials for bone or maxillary reconstructions.
This group seeks a development partner to further codevelop and market these products worldwide.

The technologies that could be suitable are logistics and substitution knowledge, with application to the development of the kit.

Technical Specifications / Specific technical requirements:
Knowledge of biomaterials, interaction with cells, and kit development and marketing.

Targeted Countries
ALL

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New Therapies in clinical phase for the treatment of specialty diseases.

(Ref: 07 ES CACI 0I9Q)

Technology Request

Abstract:
A Catalan specialty pharmaceutical company in process of expansion is looking for new therapies in clinical development with a preferential focus on New Chemical Entities in the following therapeutic areas: Nephrology – Urology, Rheumatology or CNS diseases. The company is seeking to build strategic alliances with either the industry, academy or research organisations developing new therapies with therapeutic added value.

Description:
The current portfolio of the company contains drugs for the treatment of:
Psychiatry / Neurology
Attention-deficit hyperactivity disorder (ADHD)
Status epilepticus
Antiepileptic / Anticonvulsive
Nephrology / Urology
Hyperkalaemia
Hyperphosphataemia
Rheumatology / Traumatology
Rheumatoid Arthritis
Paget's disease/ Osteoporosis

We are looking for new / complementary therapies related to our portfolio.

Technical Specifications / Specific technical requirements: Projects in clinical development.

Further Information:
The company is specialized in "niche markets", that is to say, drugs for diseases of low prevalence/incidence included in the three therapeutic areas, so we are interested in therapies for this type of diseases, as well. Commercialize the new products, both the complementary to the existing drugs and the ones for new therapies.

Current and Potential Domain of Application:Collaboration Type:
License Agreement
Technical Cooperation
-Testing of new applications
-Adaptation to specific needs

Comments:
The company is seeking to build strategic alliances with either the industry, academy or research organisations developing new therapies with therapeutic added value.

Targeted Countries: ALL

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Bluetooth connection to mobile phone

(Ref: 08 ES 25E2 0J5L)

Technology Request

Abstract:
A medical technology company located in Catalonia region (Spain) is developing a new product for medical control of some diseases. They need a provider that can help them to develop a connection from our device to a mobile phone.

Description:
A medium enterprise from the Catalonia region (Spain) has a wide experience on medical technology. Nowadays, they are developing a product to improve the quality of life of the patients of some diseases.

They are looking for a company which is able to provide them with cost reduced bluetooth module and/or a system to communicate with a handy and be able to make it ring, and to integrate it in our device with the technological assessment of the provider. One of the goals is to be able to make the connection with as much as mobile phone platforms as possible.

Technical Specifications / Specific technical requirements:
- The bluetooth module has to be preferably cost reduced, with the minimum footprint possible and also with minimum consume since this is a battery sourced device.
- The minimum working range is 3 meters.
- The connection has just to make ring the mobile phone they have in their bluetooth range.
-Small footprint and minimum consume.
-Works with as many mobile phone platforms as possible.

Collaboration Type:
- Joint further development
- Testing of new applications
- Adaptation to specific needs
- Transfer of knowledge in new raw materials

Comments
Type of partner sought: With capability to add technology.
Specific area of activity of the partner: Preferably, with expertise on medical devices.
Task to be performed: Joint collaboration attending the request.

Targeted Countries
ALL

Associated Thematic Group

Healthcare

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Wearable oximetry sensors

(Ref: 08 ES 25E2 0J5W)

Technology Request

Abstract:
A medical technology company located in Catalonia region (Spain) is developing a new product for sport medical monitorization. For this new product, they need a provider of oximetry sensors with a minimum footprint and the technology involved for extracting from them the SpO2 (percentage of oxygen in blood) and HR (Heart Rate) information.

Description:
A medium enterprise from the Catalonia region (Spain) has a wide experience on medical technology. The company is specialized in development of new medical concepts and projects for hospitals, medical manufacturers.
They are looking for a provider for very little footprint of oximetry sensors (both emitter and receiver) and the technology to make them work.
They are developing a new equipment for monitorization of some medical parameters for the sport market, and they would be interested in a transfer of technology to extract HR and SpO2 information.

Technical Specifications / Specific technical requirements:
Both the emitter and the receiver should not be bigger than 5mm from each side. The working environment and life expectancy should meet the normal market expectations.

Targeted Countries
ALL

Associated Thematic Group
Biotech Pharma & Cosmetics

Collaboration Type:
Engineering

Comments:
- Type of partner sought: Preferably, with technical specifications required.
- Specific area of activity of the partner: Available to co-develop the new product.
- Task to be performed: Helping with the know-how to the development of the new product.

Targeted Countries
ALL

Associated Thematic Group
Healthcare

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3G systems for telemedicine applications.

(Ref: 08 ES 25E2 27JI)

Technology Request

Abstract:

An enterprise located in the Catalonia region (Spain) works in the medical device field, more specifically in the areas of respiration, audiometry, sleep and scales.

They are looking for handheld 3G system (mobile/PDA) including the terminal and its software, for linking its portable devices to several telemedicine platforms.

Description:

The 3G systems have nowadays a great application improving the medical device. An enterprise from the Catalonia region (Spain) is working on medical devices, improving their technology. They manufacture and commercialise medical device. The areas of expertise of this enterprise, relating the medical device are respiration, audiometry, sleep and scales.
To some new projects in which they are working, they are looking for an enterprise able to develop a software application running into a mobile or PDA and capable of communicating with their portable devices via Bluetooth or USB, also to send the data to the server of a telemedicine platform via 3G technology. The partner must be able to cooperation. Subcontracting and co-contracting, relating this research is welcomed.

Technical Specifications / Specific technical requirements:

The 3G system should be able to upload data from the server to our portable devices and to download data and raw signals in real time to the telemedicine server.

Comments
- Type of partner sought: Enterprise with expertise on medical device.
- Specific area of activity of the partner: Cooperation in the definition of specifications.
- Task to be performed: Co-development of the product.

Targeted Countries
ALL

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Integraton of interoperatibility standards into medical software.

(Ref: 08 ES 25E2 27JJ)

Technology Request

Abstract:

A Spanish enterprise located in the Catalonia region has wide experience manufacturing and commercializing medical devices in the areas of respiration, audiometry, sleep and scales. They are looking for a company capable of developing a specific compatibility with health information systems and software that they are developing.

Description:
An enterprise from Spain (Catalonia region) has experience manufacturing and commercializing these medical devices. Most of the devices from this company include medical software for patient data and tests management, data interpretation and online link to the devices. They need make software with interoperability standards (XML, HL7, DICOM, etc) for linking them to several Health Information Systems (HIS).

Technical Specifications / Specific technical requirements of the request
Their requirements include the link of several software applications in different areas, such as spirometry, audiometry, sleep diagnosis and neurophysiology. Their main interest is on the HL7 standard, although they are open to study other alternatives.

The compatibility with the standard should be developed as an external module, including the exchange of patient data between our software applications and the HIS, the management of test requests from the HIS and the upload of reports to the HIS.

Collaboration Type:
- Joint further development
- Testing of new applications
- Adaptation to specific needs
- Transfer of knowledge in new raw materials
- New way to use an existing production line
- Change in the partner sought's currently used technologies: Absolutely novel process

Comments:
Type of partner sought: Industry certified in HL7 or DICOM.

The specific area of activity of the partner: Software development based on standards.

The tasks to be performed by the partner: Cooperation in the definition of specifications, software development of the proposed solution for the external module, cooperation during validation.

Targeted Countries
ALL

Associated Thematic Group
Healthcare

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